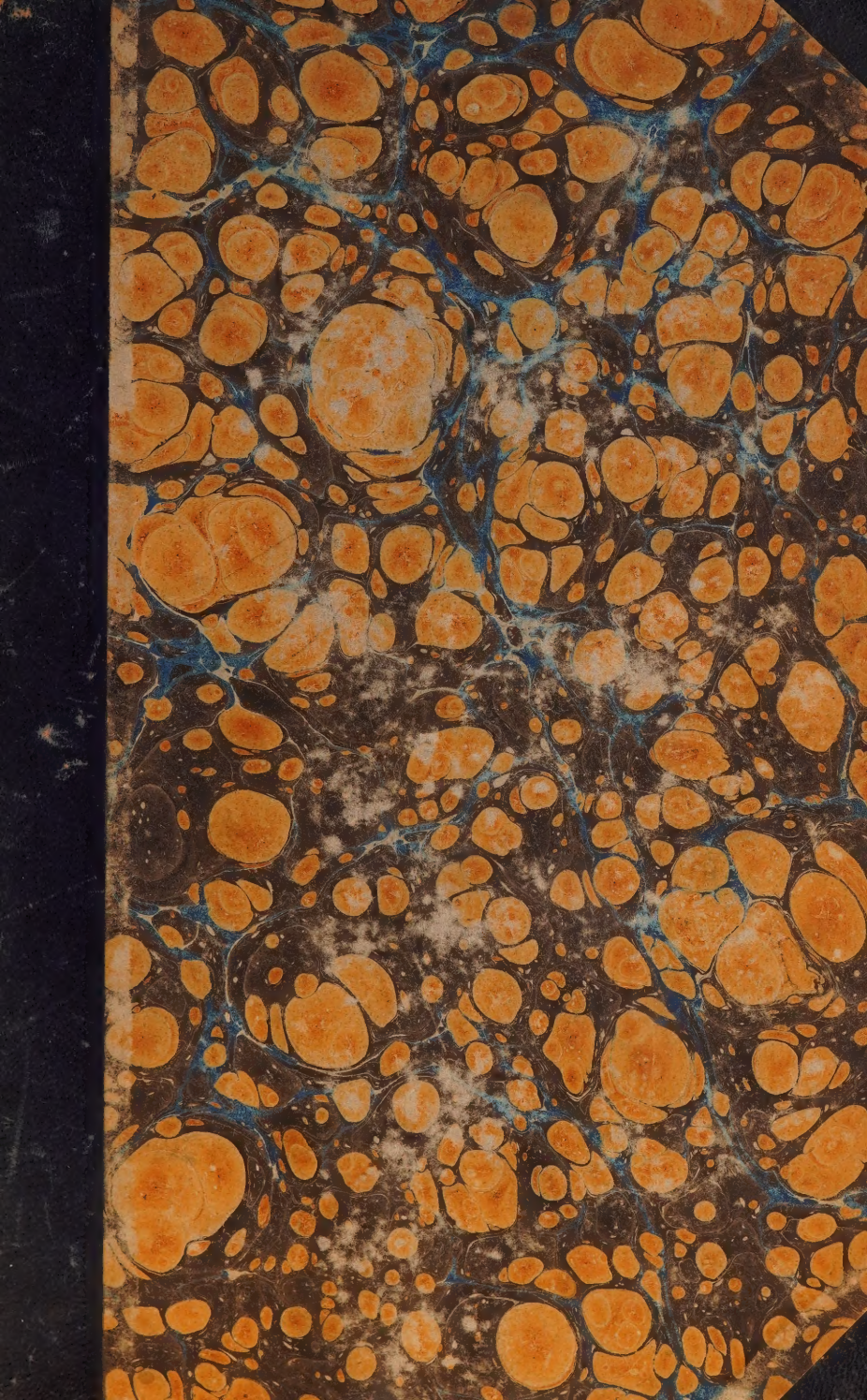

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AND

# Journal of the Board of Agriculture

OF

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## THE DOMESTICATED ANIMALS

In the system of mixed husbandry, which is the one most generally suited to this portion of the great North American continent, the breeding and feeding of live stock must necessarily occupy a prominent position. Things pertaining to agriculture, as well as other interests, are now very different in Canada to what they were some dozen or twenty years ago; a large consuming population has arisen in our increasing towns and cities; a regular demand has sprung up for our surplus produce and cattle in the eastern States, so that a constant enhanced money value has been imparted both to our grain and live stock, whether in a lean or fattened condition. To meet this demand, our farmers must not be content to rear animals that require five or six years to attain maturity; but must seek such as possess the qualities of great weight and early ripening; that is to say an aptitude to grow and fatten rapidly, without consuming an enormous quantity of food. These remarks apply alike to cattle, sheep and swine; and we think that a series of popular articles on the domesticated Animals of the farm, compiled from authentic sources and some considerable personal observation and experience, cannot fail to be, to some extent, both interesting and useful to many of our readers. We purpose beginning with Horned Cattle, then proceeding to Sheep and Pigs; tracing their history, varieties, characteristics, and adaptation to varying physical conditions of climate, soil, &c.; and we shall probably finish this series of papers by treating that noble and useful animal, the Horse, in a similar manner.

### THE SHORT-HORNED BREED.

We begin with the Short-horned, not because we consider this breed as superior to all others in its adaptation to the almost endless variety which obtains on the surface of the earth as respects soil, pasturage, elevation, &c., but because in the most advanced agricultural portions of the old world, as well as of the new, its pre-eminence is now almost universally accorded. In a few of the western counties of England, some eminent breeders seem to have considered the Hereford cattle to be at the head of our improved races, and ear-

tainly they have succeeded in producing very fine specimens, adapted to a much wider range, perhaps, than some authorities seem disposed to admit. But it is certain that for general purposes and conditions, public opinion has unmistakably pronounced in favor of the Short-horns. In proof of this we need only state that it is only within the last two or three years that any printed record of the pedigree of the various families of the Herefords and Devons has been published, while we have already twelve massive volumes of Coates's world-renowned Herd Book, in which the pedigrees of the Short-horned breed have been most carefully and clearly stated; shewing how jealously the purity of its blood has been watched and transmitted, of which there is nothing to compare in the history and progress of any other. Besides, the fourth volume of the American Short-horn Herd Book, under the able editorship of Lewis F. Allen, Esq., is in the course of preparation; and in our own Canadian Stock Register, compiled in the office and by authority of the Board of Agriculture of Upper Canada, the full pedigrees of nearly four hundred Short-horns are recorded; animals that now are, or recently have been, owned by farmers in this section of the Province. The Short-horns, however, did not attain to this proud pre-eminence without opposition or rivalry, since their history shows that they had to make headway against the long-cherished prejudices and imaginary reputation of the great body of breeders. It is remarkable that in Scotland, where they were at first absolutely despised, they have for a long time been highly cherished, and from the rich Lothians to the extreme north, may now be found some of the best herds of the United Kingdom.

This valuable breed of cattle has received at various times different designations. It was originally called "Dutch," "Teeswater," and finally "Short-horned Durham;" not that it originated in that county, as the term might lead us to suppose, for it is certain that the breed existed for, perhaps, centuries, in Lincolnshire, Yorshire, Northumberland and the Borders. There is strong evidence for the belief that the breed originated from stock originally imported into England from the opposite coasts of Holland, the cows of which had long been celebrated for their large size, abundance of milk, and in many instances remarkable fattening qualities. More or less of these cattle were to be found from Holderness, through the plains of Yorkshire, the luxuriant pastures of Teesdale, even to the south-eastern portion of Scotland. In so extensive and diversified a tract of country considerable differences would doubtless exist, even upon the supposition that they were all descended from a pure and uniform race. Authorities most worthy of credence, if not perfectly agreed as to the exact variety from which our present race of Short-horns has been derived, testify to the fact that in general the original cattle were of great size, and celebrated for their yield of the richest milk. They are said to have had the head thick, the neck coarse, the shoulders large, the sides flat, the forequarters defective, the coarse parts bulky, the fine small, the skin thin and the constitution somewhat delicate. In the course of time, by mixing with the native breeds they became more hardy, and by judicious selections improved in symmetry and fattening properties.

About the middle of the last century the cattle indigenous to the rich and picturesque valley of the Tees, a river which separates the celebrated breeding counties of Durham and York, were found to have a much improved character, and to possess in common, many of the characteristics of a distinct breed. They had in fact most of the traits, although in general but imperfectly developed, of our present improved Short-horns. This breed had been improved by importations from Holland, Holstein and Jutland; being red or mixed with white, and occasionally roan; they had a mellow touch, good hair,

light offal, particularly wide carcases, and remarkably deep fore-quarters, affording excellent meat, and the cows abundance of milk. The shortening of their horns appears to have been a gradual process. It is stated on reliable authority, that St. Quintin of Scampster, and the Debinsons, effected considerable change, and that we are greatly indebted to those gentlemen for the present "Improved Short-horned Breed." This success naturally induced others to follow up the enterprise, and to effect still further improvements; among whom may be mentioned Mr. Millbank, of Barmingham, of whose success an idea may be formed from his having bred an ox, which, at five years old, weighed when slaughtered, the four quarters, 150 stones, of 14 lbs to the stone, and the tallow 16 stones. Sir James Pennyan, a large land owner in the counties of York, Durham and Northumberland, procured stock from Sir William Quintin's herd, and presented six cows and a bull to Mr. George Snowdon of Hurworthy, his tenant; and from these proceedings very valuable results were obtained. This breed, now designated the Teeswater, after the name of the district in which many of the best specimens had been reared,—or simply the Shorthorn, had been gradually improving till we come down to the times of Messrs. Charles and Robert Colling, of Darlington, who, with great painstaking, and admirable judgment and skill, succeeded in effecting such further improvements as to give this breed a unity of character, and most of the characteristics by which it has become subsequently distinguished. The famous bull "Comet," was bred by Mr. Charles Colling, and sold for one thousand guineas!

"These individuals had become considerable farmers in Yorkshire soon after the year 1770. Mr. Charles Colling, the younger brother, is justly regarded as the founder of the new breed, although his elder brother followed him in his course of enterprise and improvement, step by step. Charles Colling cannot indeed, be compared with Bakewell for boldness and originality of design; but he was greatly more fortunate in the selection of a basis for his breed. Colling, like Bakewell, seems to have regarded size in his animals as a quality secondary and subordinate to those which he wished to communicate, and to have directed almost exclusive attention to beauty and utility of form, and development of properties of early maturity and facility of fattening. Having by selection and the skilful conjunction of the best individuals for breeding, become possessed of animals with the properties sought for, he continued to breed from his own stock, disregarding affinities of blood, by which means he gave to it the necessary permanence of characters, and that delicacy of form which this system of breeding tends to communicate. He adopted the practice of hiring out his bulls, by which means he realised a competent fortune, and extended the influence of his stock to the districts around him. (Low.) "His rule of proceeding," remarks the Rev. Mr. Berry, "was, disregarding popular prejudices, he adhered to a system which he conceived to be correct, and awaited patiently for the result. His constant aim was to combine the greatest inclination to fatten with the most correct form; and the numerous bulls which he let at unprecedented prices, together with the items of his sale catalogue, furnish ample proof that he did not proceed far as a breeder before public opinion was most decidedly with him."

We possess but very scanty information respecting the particulars of the system which Colling pursued, since he studiously avoided, both in public and private, throwing any light upon the subject. A very singular fact relating to the origin of his stock is well worth repeating. It is generally believed that Colling acquired the bull, which may be said to have originated his celebrated herd in the following accidental manner. A calf belonging to a poor man who grazed his cow on the highways, attracted the attention of Mr. Robt.

Colling who was induced to purchase it, but the calf was shortly afterwards transferred to his brother Charles, who appears to have been particularly struck with its symmetry and promising characteristics. He likewise acquired the mother of the calf; but after being transferred to richer pasture she became so fat as to be incapable of breeding. The calf exhibited a similar aptitude to fatten, and as a bull his services were effective only for a short time. This bull was named *Hubback*, and may be considered as the father of our present race of improved Durhams or Shorthorns. He is said to have been below the ordinary size of the then Teeswater cattle, but that his touch and points were of an unprecedented order. From this time Colling continued to improve his herd rapidly, and soon produced a number of celebrated bulls, as Petrarch, Bolingbroke, Favorite, Comet, &c., which soon began to spread this improved breed, so that as early as the year of 1800, it was sought after and appreciated by farmers residing in various districts to which it had hitherto been unknown. This result was doubtless considerably influenced by the following circumstance. A remarkably fine bred animal, named the *Durham Ox*, a son of Colling's bull "Favorite," and a common cow, was calved in 1795. At five years old he was sold for £140, being of immense size and remarkably fat. In five weeks after he was sold to Mr. John Day for £250, and it is said that in two months after that he could have been sold for £2000! For six years Mr. Day travelled through England and Scotland with him on exhibition, but in 1807 the animal accidently had his thigh broken, and was obliged to be slaughtered. His carcase weighed, notwithstanding what he must have lost during a period of eight weeks' suffering, 165 stone, 12 lb.; tallow, 11 stone, 2 lb.; hide 10 stone, 2 lb. At ten years old he weighed 270 stone, and it is said that if he had been kept quiet and regularly fed, that he would have weighed more at six or seven years old than he did at ten.

Colling continued to follow Bakewell's system of "breeding in and in," till he appears to have reached the limit of refinement, and his stock began to exhibit those signs of weakness of constitution, which sooner or later are sure to accompany a continued and forced intermixture of blood in a limited number of individuals nearly related. From this undesirable result he was probably led to cross with the Highland and Galloway breeds, an experiment which proved successful only with the latter. He put a Galloway cow of red color, to one of his best bulls, a grandson of Bolingbroke. "The produce was a bull-calf, which in due time was conjoined with a fine Short-horned cow, Johanna. The produce of this union was likewise a bull-calf, which, in the fitting time, was put to another fine short-horned cow, Lady, from whom has descended a family termed, in reproach, the Alloy. The family of the Alloy, however, has proved not inferior to those of what are termed pure blood. At the sale of Mr. Colling's stock, which took place in 1810, this cow, Lady, with her descendants, sold at enormous prices, shewing that in the estimation of the public, the Galloway cross had not impaired the excellence of the pure stock. Thus it appears, that by a single cross with another race, and then by breeding back again to the superior one, no injury was sustained; nay, a fresh infusion of vigour was probably made into the parent stock. Similar results are common in the breeding of horses, dogs, and other animals. The proceeding, in the case of Colling, was nothing more than a rash experiment, the favorable result of which should not diminish the caution of breeders, in preserving the purity of a family of animals whose characters have been established." (Low.)

The whole of Colling's unrivalled herd was sold in the year 1810; and it will not be uninteresting to the reader of the present day to be put into possession of the aggregate result, with a few of the most prominent items of this

celebrated sale. The number of cows was seventeen, which brought a total sum of 2669 guineas. Countess fetched the highest price, viz: 400 guineas; she was out of Lady, by Cupid, and nine years old. *Eleven Bulls* fetched a total of 2249 guineas; the highest being Comet, six years of age, got by Favorite out of Phœnix, and sold for 1000 guineas! *Seven Bull Calves*, under one year old, realised 665 guineas; Cecil, out of Peerless, by Comet, obtained 170 guineas; George, out of Lady, by the same bull, 130 guineas, and Young Favorite, out of Countess, got by the same, 140 guineas! *Seven Heifers*, all got by Comet, obtained 893 guineas: Young Countess out of Countess, 206 guineas; and Young Duchess out of Dam by Favorite, 183 guineas! *Five Heifer Calves* under one year old, sold for 306 guineas; Lucille, out of Laura by Comet, 106 guineas; making a grand total for 47 head of cattle, of £7126 sterling!

Mr. Robert Colling was likewise a distinguished improver of the Shorthorns, although his stock did not altogether equal the celebrity of his brother's. His herd was all sold in 1818; when, as appears by the catalogue, 34 *cows* sold for 4144 guineas; 17 *Heifers*, for 1237; 5 *Bulls* for 713; 4 *Bull-calves* for 713; being 61 head of cattle for 7484 guineas!

This variety of the Teeswater, or as it has since been called, the Improved Shorthorn, was for some time principally confined to the county of Durham, where there were several distinguished breeders, as Mr. Hill, Mr. Maynard, Messrs. Charges, Mr. Mason, Col. O'Callagan, Mr. Crofton, and others, to whom their successors are under great obligation. "Gradually," observes Mr. Dickson, "the Shorthorns spread over all parts of the United Kingdom, and among parts of the continent of America and Australia. The breeders in Lincolnshire and Yorkshire, have never, in the opinion of the best judges, been able to raise animals equal to those produced in the county of Durham; the cattle being generally wanting in symmetry. The principal breeders in Northumberland, about fifty years ago, were the Culleys, the Comptons, the Smiths, the Greys, the Thomsons, the Jobsons, Hunt, Curry, and others; while north of the Tweed, was the late Mr. Robertson of Ladykirk, who procured his first stock from Mr. Colling. The writer having had frequent opportunities of inspecting Mr. Robertson's stock, is enabled unhesitatingly to state that the animals composing it were unrivalled. Mr. Robertson kept about thirty breeding cows, all of them perfect models. In color they were generally roan, light grey, and white, or rather cream color, and occasionally bright blood-red. The nose and mouth, and also about the eyes, were cream colored; eyes full, lively and prominent; forehead broad, and from eyes to nose rather long; muzzle fine, ears thin, horns short and white; neck well set on, rising gently from the shoulders, and fine, but not thin; neck, veins, and breast full and prominent; shoulders full at the top, and moderately so down to the fore-arm, and full of muscle; small, clean, flat bone below the knee; fore-legs straight and moderately wide; the fore-end open, wide, and prominent; the crop full and round and wide behind the shoulders, or girthing-place; ribs round and well arched; back and loins full and broad; hook wide and long to rump-bone; well-filled from the loins to the setting-on of the tail, which is almost in a straight line with the shoulders; tail broad and full of hair, dropping outside of the hooks; the hips or buttocks well filled on the outer and inner sides; hind legs wide and well set, and full of muscle above the knee; belly straight, the whole carcase being nearly cylindrical; hide rather thick, soft and mellow, with a fine touch; hair woolly. Such were the forms and qualifications of the Ladykirk Shorthorns. At one time Shorthorns were preferred with thin hides, and thin silky hair; but these being found unable to withstand the cold, Mr. Robertson and other breeders selected those with soft but thicker hides, and thick-set

woolly hair; indispensable requisites to protect the animals from cold. Mr. Robertson's stock possessed great aptitude to fatten, and fed to great weights at an early age,—his two-year-olds weighing from 70 to 80 stones each, and his three-year-olds weighing upwards of 100 stones. The stock arrived at maturity at two years old. Mr. Robertson followed the practice of breeding "in and in," as it is termed; the reason alleged being the fear of deterioration by introducing other blood. His cattle, in consequence, showed a delicacy and weakness of constitution, which, no doubt, arose from this cause. The system is justified by many breeders, but condemned by a large number. A slight acquaintance with animal physiology would, however, convince breeders generally of its bad effects. Mr. Robertson's stock were, notwithstanding, in great request, and commanded high prices. From the minute descriptions above given of their conformation and characteristics, the reader will be able to form a full and correct idea of what are even now regarded as the principal points of this celebrated breed.

From the district of the Tees the Shorthorns soon extended southward thro' Yorkshire into Lincolnshire, and westward into Leicester and Northampton, as well as into Lancashire, Cumberland and other counties. At an early period the breed spread through Durham and Northumberland into the valley of the Tweed, and gradually made its way amidst much prejudice and opposition into the southern and eastern Lowlands of Scotland. Ultimately it diffused itself over considerable portions of country till it reached the extreme north, where, as it has been before observed, are now to be found some of the very best herds of Shorthorns in the British Islands.

(*To be continued.*)

# Agricultural Intelligence.

## THE SMITHFIELD CLUB FAT CATTLE SHOW.

This Annual Exhibition of Fat Cattle, Sheep and Swine, which has been established in London for about half a century, was held in the usual place in Baker Street, during the second week of December. Of late years the implement department which formed no part of the original design of the show,—has greatly increased, so as to render it often difficult to inspect satisfactorily, either the animals or the machines. Although the Society has changed the locality for holding its exhibitions two or three times since its commencement, with a view of meeting its increasing wants, yet it appears that its present accommodation is getting every year more and more inadequate, and a committee has been appointed to make enquiries with a view to obtain a suitable place, having larger accommodations than the one now occupied. The Crystal Palace at Sydenham, we perceive, has been spoken of.

The late show appears to have been upon the whole quite satisfactory, although in some of the departments of horn cattle there might be traces of a little falling off compared with one or two of the most successful recent years. We condense the following statements from a very elaborate report, evidently got up with great judgment and industry, in the *Mark Lane Express*, a paper occupying the foremost position as an authority in all matters pertaining to agriculture in England. From the subjoined table our readers will be able to judge accurately of the total number of cattle of the different breeds for the last four years.

| | 1855. | 1856. | 1857 | 1858. |
|---|---|---|---|---|
| Devons | 17 | 21 | 32 | 28 |
| Herefords | 20 | 21 | 36 | 26 |
| Shorthorns | 40 | 42 | 43 | 42 |
| Scotch, Irish, and Welsh | 16 | 13 | 18 | 12 |
| Other pure breeds | 3 | 18 | 22 | 26 |
| Cross-bred | 7 | 12 | 8 | 23 |
| Extra | 9 | 13 | 17 | 14 |
| Total | 112 | 140 | 176 | 171 |

"That is, as compared with last year, we have a decrease of Devons, Herefords, Shorthorns, Scotch, Irish, and Welsh, and Extra stock, the principal deficiency being with the Herefords and Irish. Other pure breeds show an increase, and the Cross-bred are three times as many as they were last year. The Shorthorns keep pretty closely to their usual force. The Show, altogether, is full as usual, without being in excess.—Taken as a whole, the cattle classes cannot be ranked higher, if as high, in merit as we have known them, there being too many second-rate and third-rate animals—forming a disproportionately large back-ground, setting off the few marvels of excellence which are conspicuous in the Show. One feature, however, is more observable than ever—and this must gratify our humane and economical friends who are opposed to the pampering and bloating of beef into unwholesome fat meat, bad for graziers and butchers, good only for cooks—this is the presence of well-bred, well-fed meat, with an almost complete absence of unsightly lumps of fat on backs and rumps. In a word, it is, in this sense, the "evenest" show we have ever seen."

The *Devons* mustered in good force, and had some good representatives. Prince Albert's prize Steer is represented as a handsome animal, "symmetrical, with flesh well laid on, and capital in flank and thigh." In *Herefords*, the Show was excellent. Mr. Naylor's Birmingham Gold Medal Hereford Ox was not permitted to compete at Smithfield, which is described "as the grandest Hereford of the year, or indeed of several years; a beast that would of itself form a magnificent point of attraction."—Mr. Stratton's Gold Medal Steer is described "as a perfect model of a *Shorthorn*, surpassing all competitors. Mr. Stratton is an eminent breeder of this world-renowned class of cattle, and the gold medal heifer got by one of his bulls, is said "to be a study of what a young Shorn-horn ought to be." There were a few good specimens of *Sussex*,—well fatted and good handlers, but in general their backs are too narrow. No Irish breeds were entered, and the *Welsh* were thinly represented. Some very good Scotch horned and Scotch polled cattle, and a Galloway Ox of great depth of frame.

"The Cross or Mixed Breed classes are of great interest and importance, as though the perpetuation of a good first cross is a difficulty not easily overcome, the production of first-rate feeders by crossing breeds judiciously is of great and growing value. Besides, it is sometimes a matter of curiosity to find how experiments answer with the most diverse of breeds, the results of extraordinary mixtures being sometimes highly instructive if not profitable. Messrs Martin showed a good Aberdeen and Shorthorn—Mr. Knowles, a very nice thing as a steer, the produce of a Shorthorn and Scotch horned. Mr. Knowles' Shorthorn and Aberdeen heifer, red, with horns, is very well formed—straight, deep, and uncommonly nice meat. The Duke of Beaufort's Shorthorn and Gloucester very good indeed, handsome, and with a full outspringing chine. Mr. Farquharson's Devon and Highland is a happy hit; and the Earl of Darnley has done well with a Hereford and Shorthorn cross, bred by Mr. Griffin, the character of both breeds being, however, clearly discernible. The heifer class comprises some very nice things indeed, especially Mr. Holland's beautifully fed heifer, and Mr. Druce's compact white heifer."

SHEEP.

The number of sheep for the last three years is as under:

| | 1856. | 1857. | 1858. |
|---|---|---|---|
| Long-wools | 40 | 35 | 37 |
| Cross-breeds | 18 | 32 | 32 |
| Short-wools | 38 | 62 | 60 |
| Total | 96 | 129 | 129 |

The *Leicesters* were a better show than had been previously produced; combining a superiority of form and feeding quality, which makes a profitable sort. The *Cotswolds* were wonderfully large and splendid sheep, with fine wool, dark faces, and capital mutton. The show of *Short-wools* was very fine, the Duke of Richmond, Mr. Rigden, and Lord Walsingham being at the head; Mr. Jonas Webb not exhibiting. "Beautiful as these *Downs* really are, the art of 'trimming a sheep,' has here also, in too many instances, been closely studied."

"The important classes of Cross-bred sheep are a striking feature in the Show. Mr. Overman's prize Southdown and Leicester wethers are very perfect in form, the character of the three sheep very equal, and the handling uncommonly fine. Mr. White's, Mr. Hobbs', Mr. Howard's, Mr. Morland's, and Mr. Twitchell's are unusually good.—Why do exhibitors persist in clipping so as to present a straight flat back to the eye, and rumps, flanks, plaits, bosoms apparently full and expanded, when the hand instantly detects the falsity of the outward show, and reveals the abominable attempt to thus gloss over a defective form? And why do judges award honors to such sheep as they have done in every class? A sheep unfairly shorn, and a pig unduly old, ought alike to be disqualified by the authorities. In the next class (for wethers not exceeding 220lbs. live weight) we must make the same complaint; and we would not give a prize to a pen of sheep, no matter how good their mutton, or how handsome their "looks," if there were such gross trimming and shaping the animals with the shears. Mr. Overman's magnificent sheep are in splendid condition, are wonderfully handsome, have rare fleeces, and are also properly shorn. Mr. Morland's are extremely compact, pretty, and with plenty of wool all over; but several pens in this class, some of them carrying off honors, are evidently the result of good breeding, feeding, and trimming combined. The Extra Stock Class is very fine. Mr. Twitchel's silver medal wether has extraordinary symmetry, great breadth of loin and chine, and full plaits; very fine in bone, and beautiful, but somewhat too tucked up. Mr. Howard's Oxfordshire Down wether is a beauty, possessing very great merit. Mr. Overman's wether is extraordinary for size, width, and substance. Mr. Hine's Down-and-Leicester wether has considerable length of face, and a rare chine and plaits. The Earl of Leicester's wether, and Mr. White's handsome Cotswold-and-Sussex Down ewe, are very properly "commended."

PIGS.

The number of entries is:

| 1856 | 1857 | 1858 |
|---|---|---|
| 38 | 59 | 57 |

The show of swine is described as being extraordinarily good, not only containing a large number of unusually fine animals, but the general merits of others being beyond what is usual on these occasions. For early maturity, and striking development of form and flesh, very fat and beautifully fine, were distinguishing qualities. The Yorkshire, Dorsets, Improved Bedfordshire, Improved Suffolks and Berkshire may be said to comprise the more valuable and prominent breeds.

THE IMPLEMENT DEPARTMENT.

It should be borne in mind that no prizes are awarded to implements and machines at the Smithfield Show, notwithstanding manufacturers are found to embrace with avidity the opportunity of exhibiting their productions. This department has been rapidly increasing for several years, and forms a most interesting and instructive portion of the Show. The space at present allotted is not sufficient for the purpose. Most of the machines are only within reach of the eye, and many upon the floor are so cramped and wedged in amongst others as to be quite immovable. Some, again, are to be judged of only by sections and models from the sheer impossibility of finding room for them. The state of things is unsatisfactory, and especially so when the fault admits of a remedy, that must suggest itself to everybody. Surely in London, the centre of civilization, where the possible seems to have no limit, and the spirit of enterprise is perpetually urging men to the gratification of wants that are daily increasing in magnitude and grandeur—surely in London, the capital of a country that has exalted agriculture as a grand particular star amongst the sciences, we should possess a better theatre in which to display the very implements to which we are mainly indebted for our proud supremacy.

The comfort of the public and the interests of the Club would be very much consulted by the establishment of five shilling and half-crown days, as well as the one

shilling days now in vogue. This arrangement would please those who could afford the extra fee, and present no hardship to such as could not.

There were several articles of new invention exhibited. Among the novelties deserving notice, may be mentioned *Child's Grain Separator*, an American invention, much approved; and also *Allen's Grass Mower*, and *Samuelson's Reaper*, with self acting rake. These machines are manufactured by Messrs. Burgess and Key, and are thus described:

"Allen's patent American grassmower; a machine which has, it appears, been tested in this country, and found to work well. A little more experience of its adaptability to varieties of crops is necessary before we can report upon it with confidence. The horses walk beside the standing grass, drawing the machine after them. The cutting arm, furnished with knives moving in the same manner as Burgess and Key's reaper, is thrown out from one side to a distance of three feet, terminated by a sort of wooden breast, which preserves the grass in falling over the cutters from being deposited amongst the standing crop. This arm is firmly attached to the frame of the machine, and a spring extends from the near side of the frame to a smaller travelling wheel, which preserves the position of the whole machine, and keeps the cutting arm close to the ground, while allowing all irregularities of surface to be allowed for without the attention of the man who drives. The scheme is ingenious; but one would expect either the horse power employed to be less or the breadth of swathe greater. The price is £30. The well-known reaper belonging to this firm was also here, with screw platform for side delivery in swathe, and conical dividing roller. Then we have Child's patent grain separator, a machine which introduces a new principle, "weighs every kernel of grain separately," and manages to despatch 50 quarters per day, roughing, dressing, and blowing at one operation in a very perfect manner. The novelty introduced in the machine consists in the fact that the fans revolve in an enclosed drum creating a vacuum in the chamber behind. The air rushing to supply this vacuum, enters only at one point, and meeting there with the dressed grain in its final descent from the riddles, carries it up in a very surprising manner, and holds it suspended in a chamber the same width as the back of the machine. If good and true the grain undergoes the test and falls to the heap to be raked away to the bushel; but if light and chaffy, it is drawn upwards into a larger space where the current is less severe, and drops into the place allotted to it. The air then passes out behind, catching the grain as it falls from the hopper, carrying with it almost every vestige of chaff with which it is there mixed. The price of this machine is £20. We hear it is much used by malsters and millers; and we think a simple machine without so much riddle surface might now be constructed at less expense to finish the grain as it comes in its nearly prepared condition from our combined thrashing and dressing machines. Certainly this is the most novel piece of machinery in the whole show, embodying as it does a totally new principle. There was a cheap, and what seemed to be a likely potato plough, also an American implement, as well as the celebrated American churn."

We are glad to find that Mr. Romaine showed a beautiful model of his locomotive steam digging machine, which attracted much attention. Models of Fowler's celebrated prize steam plough, or Boydell traction engine; and some others were shown.

"Steam-culture is evidently uppermost not only in the minds of the farmers, but also in the schemings of implement makers. As you walk through the galleries, one tells you of a new plan of affixing a windlass to an engine, another gives you a peep at a new form of winding apparatus, another communicates a secret as to an altogether new kind of cultivator, and everybody is talking of experience with the steam-plough, and wondering at the convincing evidence which has lately been published.

Great things will undoubtedly flow from this year's 'general muster, and throngs of chiefs' in agricultural mechanics, to inspect, consult, advise, and sow and pick up ideas. Our part as the farmer's remembrancer will be to dwell more fully as occasion serves, upon the special improvements that have been brought to light during the show."

Since compiling the above we have received in a communication from a correspondent, dated London, December 21st, the following notice of the Smithfield show:—

* * * "With respect to the recent Smithfield Exhibition, I regret that temporary indisposition prevented me visiting it as I could have wished. I only spent a few hours one afternoon, but did not much enjoy it, as the building was fearfully crowded and very warm, arising from the large number of animals, and the countless

number of spectators. Nevertheless, I was highly delighted with the general appearance of the Stock,—the high-breeding and great fattening aptitude of which appeared to me—witnessing such scenes for the first time—most extraordinary. I have seen some well fattened cattle at exhibitions in Canada, and the annual display of meat at Christmas by the Toronto butchers, I have often looked upon with admiration.—But here the fat cattle, sheep and pigs defy description, although it is stated that animals generally at this exhibition, have not been fed to such an extreme degree as on previous occasions. * * * This Show may be said to have been generally successful, both as regards the amount and quality of the stock, and the number of visitors; the latter have been computed at upwards of one hundred thousand! But unfortunately there have been many mishaps to the stock on exhibition, and these misfortunes are thought to have exceeded any previous year. The Heifer which obtained the first prize and the Gold and Silver Medals, as the best specimen in any of the classes, had to be removed from the yard as she had got the distemper, and several others were affected in the same way. This epidemic among cattle is of a very serious character, widely spread in this and other European countries, and not unfrequently proving fatal. The handsomest pig of the gold medal pen, unfortunately expired, as did also several others of its fraternity. Extreme fatness, heat and disquietude, were, most probably, the chief causes of these disasters. His Royal Highness the Prince Consort, was an exhibitor in several of the classes, and carried off two first prizes for his Devon Steers, which were indeed handsome, and evenly fattened animals; one of which I learnt was sold to a butcher for £50. In the Hereford class the Prince was defeated, and had to content himself with only a "commendation;" although his ox was really an ornament to the Show, and fetched £45, which was the sum obtained for Mr. Heath's celebrated first prize steer of this excellent breed. Steers above three years old obtained from £45 to £53 each, while one belonging to the Prince was disposed of for £60. The Shorthorns mustered in their usually large number, and for capacity and early maturity, combined with symmetry of form, stood unrivalled. Mr. Stratton's splendid steer, under three years, won the first prize and gold medal, and was sold for £70; and a second prize Heifer of this breed fetched £50. The Stock seemed to have been sent from all parts of the Kingdom; the West and North Highland breeds, although rough and hardy in appearance, were very fine animals, well fattened, and yielding the finest of meat. These Scotch polled breeds obtained very high prices; Mr. Heath's ox, (the same, I think, about which there has recently been so much controversy as to the purity of its breeding) sold for £60, and the second prize went to an animal from Aberdeen, which obtained £47. The Duke of Richmond's Southdown Sheep, from Sussex, particularly took my attention; they obtained the first prize and gold and silver medals; such animals I never before saw; and I might say the same of other breeds of sheep, and the whole of the swinish multitude. * *

The Royal Dublin Society occupied a prominent stand, and exhibited a very fine collection of roots and vegetables, which, notwithstanding several other collections belonging to the most eminent Scotch and English Seedsmen was unsurpassed. Some of the mangel wurtzel weighed from 34 lbs. to 40 lbs. each; white Belgium carrots, and hollow crowned Jersey parsnips, upwards of 5 lbs. each; and Drumhead cabbages from 56 to 60 lbs each. Skirving's purple top, and Con's Imperial Swede turnips, pure and most symmetrically grown, would average over 8 lbs. each, although they had been nearly a month out of the ground. The soil and climate of Ireland must be highly congenial to these crops, which form the farmer's sheet-anchor, and they evince no ordinary skill and perseverance in the art of culture.

The implement department of this great metropolitan exhibition was well worthy the most studied investigation, and comprised a vast amount of every species of tools and machinery, pertaining to the most advanced systems of modern agriculture, from the most celebrated makers in all parts of the United Kingdom. There were excellent models of such bulky machines as for want of room could not be shown themselves, particularly steam apparatus for farm purposes, such as ploughs, diggers, &c. Some American machines improved and modified to meet the peculiar wants of the British farmer, attracted considerable attention. Steam as a motive power, adapted to agricultural implements, is rapidly progressing, and may be said to be the leading idea of the present age. * * * I regret that I could not see the implements and machinery to advantage, as for want of space they were closely packed together in galleries,

which were densely crowded by anxious spectators, and in this respect reminding one even at this distance, of the Floral Hall of your Provincial Exhibition on the most crowded day.

G.W.B.

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## LORD NAPIER ON AGRICULTURE.

At the late meeting of the United States Agricultural Society at Richmond, the English Ambassador made a speech, from which we take the following:—

When I rise to address the great assembly which has remembered my sovereign and my country, and done me the honor of recognizing my presence at this festival, I reflect with satisfaction that however ignorant of the noble industry to which you are devoted, and however incapable of justly appreciating the efforts and services which you are rendering in its cause, I may still rank myself, though in a subordinate order, among the true sons and votaries of the soil. I remember with pleasure that my father was an unsuccessful farmer, though a successful writer on the art of farming. I belong to a class whose interests and affections are deeply rooted in the land—a class whose active age is much bestowed on the business of Parliament, or negotiation, or civil government, or the profession of arms, but whose thoughts in all the vicissitudes of life and strife, still repose upon fields and sports, and who ever dream of a late return to the hereditary home. Notwithstanding this foreign vagrancy and diplomatic desertion, I remain a member of the Highland Society of Scotland; and however incredible it may appear to you, I am President of the Pastoral Association of my native country for the improvement of the breed of sheep. With such instincts and associations you will believe that I do not feel altogether a stranger here, and that I am deeply gratified by the hearty welcome that I find from the brotherhood of agriculturists, in which I claim to be an affiliated, though at present an unfruitful member.

The husbandry of America presents in its vast extension and rapid progress a spectacle to which no Englishman can remain indifferent. History offers no example of this swift, resistless, unceasing encroachment of skilled labor over the vacant and fertile domain of the savage and the brute. It is the first triumph of man, equipped with all the accumulated powers of experience and invention, over nature in her largest limits and her most gracious and bountiful conditions. In the agriculture of the United States we see with exultation a beneficent and spontaneous procession of industry, of which the field is the American continent, and of which the implement is the Anglo-Saxon arm. Such a reflection might alone furnish to my country many motives of thankfulness and pride; but it is equally certain that the agriculture of America forms one of the principal foundations of the existing prosperity of Great Britain. In the three great staples of cotton, grain, and tobacco, imported from the United States, we recognize an indispensable material for our manufactures—a main element in the food of our people, and an important basis for the revenue of the State. While the agricultural products of the United States contribute in a high degree to the resources and power of our government, and to the welfare of the industrial community, the land and labor markets of America offer to our superabundant population an inestimable refuge in periods of distress. By this convenient issue the burthen of domestic taxation is lightened, our public peace is confirmed, and our political institutions are defended against those disturbances to which they might otherwise be exposed from the passions of men without the regular means of support, and without hope of prospective improvement.

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In the remarks which follow, Lord Napier, in a very polite way, points out some of the defects of American farming. With strict candor, he admits, it will be seen, that American horses, except for heavy draft, are equal to those of England. This is unquestionably so, in reference to horses for *business* purposes, however it may be in reference to the mere racer:—

While recognizing all the importance of the land and the agriculture of the United States to the social welfare of the British empire, I cannot deny myself the pleasure of expressing to you the interest which, as a mere virtuoso in rural matters, I have taken

in the external aspect of American husbandry. In some respect the prospect is often indeed unsatisfactory to the English eye. In the new parts of the country the primitive graces of the landscape are ruthlessly violated, while the artificial trimness to which we are accustomed has not begun. We mourn over the blackened and girdled giants of the forest, each of which would be the sylvan honor of an English homestead—our fastidious taste complains that the furrow is not straight, that the wheat is not clean, that the swamp is not drained, that the sward bristles with obnoxious stumps; that there is a general absence of root or green crops, and we discover a great deficiency of sheep. In the regions which have been longest under the plough, the vital forces of the soil seem to have been frequently overtaxed; the more valuable cereals are abandoned, and here and there the wilderness resumes its sway. It requires but little reflection to show that these phenomena are the natural and transitory concomitants of the first epoch of tillage, which is hasty, pitiless, and impoverishing. On the other hand, I remark that in many portions of the Union there are extensive tracts which would be considered opulent and well ordered in any European kingdom. In the absence of turnips, potatoes, and mangold-wurtzel, the English traveller is gratified by the spectacle of Indian corn, tobacco, and the vine, and further south, by the cotton plant, the rice field, and the cane, all magnificent and lucrative productions, unknown to British husbandry. There is also a greater abundance of fruit trees; the breed of horses equals that of the mother country, except I think, for the purpose of heavy draft; and the various races of cattle replenished by importations of the best blood of England, will be propagated without degeneracy, and will be formidable rivals to the parent stock.

In a country where human labor is exorbitantly expensive, the greatest ingenuity is exerted in the improvement of tools and the invention of mechanical aids and substitutes, and in this respect the triumphs of American contrivances are not only profitable at home, but are recognized and adopted by foreign nations. Much, gentlemen, has been accomplished, and the future will furnish still higher results. If we regard the dissemination of intelligence, the diffusion of tastes for rural pursuits, the increased application of capital, the scientific inspection of soils, the discriminating use of manures, the development of the home market, and the general establishment of competitive exhibitions, we may safely affirm that American agriculture has entered upon a period which will not only be reparative where the past was exhaustive, but which will gradually carry the land in every quarter to a high pitch of productiveness and beauty.

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## RUST IN OATS—WHAT IS IT?

Under this head the *Southern Homestead* of last week makes the following remarks. The subject is one of great interest to farmers, and the investigations should be prosecuted until the cause of their new enemy is ascertained, if possible:

Throughout the whole south western portion of the Union the oat crop has suffered from a terrible blight, which from its resemblance to the fungus substance that sometimes attacks wheat, by that name, has been called *rust*. So far as we are informed, rust in oats has hitherto been unknown. We have never read of anything of the kind, in any section of the country. The fact that it is thus unusual, opens a wide and interesting field to the entomologist, as it invites investigation in a channel, so far as we can ascertain, heretofore unexplored.

While in West Tennessee, a short time since, we took occasion to examine the blade of the oat under a microscope, (kindly furnished us by the Bailey Troupe,) and were greatly surprised with the phenomena which the glass revealed. Since then, we have followed up those examinations, by the aid of more powerful instruments, at the Medical College in this city, in company with several scientific gentlemen.

The cause of all this destruction of the oat crop is a living worm, too small to be plainly seen with the naked eye. A single blade or leaf of the oat sometimes contains hundreds of them. They lie encased in the tissues of the leaf or blade where they have been germinated, beneath the epidermis, or thin pellicle over the exterior portion of the blade, and as they progress in development, the skin of the leaf is raised into curious puffy blisters. The growth of the worm subsequently ruptures these, and it escapes to feed upon the plant. When first released from their covering, they are of a beautiful

clear red color, almost transparent, but soon begin to change color and form, getting more opaque and dark in appearance, until, in the course of transformation, they become a black bug, with legs and wings, when they attack the head or grain of the oats.

Under the microscope, the dust which remains on the leaf, closely resembles that on the wings of butterflies.

How this innumerable army of infinitesimal worms originated is yet a mystery. It is a singular fact, however, that wherever the greatest quantity of grain has fallen, there the oat crop has fared the worst. In our recent trip through West Tennessee, we saw but a single field of oats between the Mississippi and Tennessee rivers which was not a total failure, or in which it would not be folly to put a scythe blade. That field was near Denmark, Madison county, and was sown very early, It is well known that more rain has fallen in West Tennesse, this season, than in any other part of the State; hence the extreme wet weather must have had some agency in the production of this animalculæ.—It is also well known that moisture and heat will produce and multiply animal life, millions per hour, and therein we judge is the secret of this destruction of the oat crop. It is one of those cases of natural phenomena which occur only at a certain stage in the growth of plants, and under peculiar states of temperature and weather. It may happen next season, or it may not occur again for many years.

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## BOTS, AND THEIR INFLUENCE ON THE HEALTH AND CONDITION OF HORSES.

Several circumstances combine to make a much greater demand for the services of veterinary practitioners in Great Britain than in this country; and, of course, veterinary schools are more abundant and more patronized, and veterinary science and art cultivated to a much greater extent and more thoroughly. As an instance of the extent of the demand for knowledge and instruction in this department, we may name the fact that there has recently been published the first number of a Quarterly Review, devoted to veterinary science and art, and to comparative pathology, entitled the "Edinburgh Veterinary Review and Annals of Comparative Pathology." In style and general appearance it is said to equal any of the British Quarterlies, and this initiatory number is said to contain several articles of merit. One of the articles—that on Bots—is certainly a masterly production, giving evidence of extensive observation and investigation, and of great sagacity and soundness of judgment. Of the more valuable of the statements and suggestions contained in this article, we present our readers with the following synopsis:

The opinion has long prevailed that bots were injurious to the health of horses, and frequently the cause of death. A collection of bots in the stomach has been, and is yet, very commonly believed amply to account for death when met with in horses not otherwise apparently diseased. This opinion naturally led to various attempts for their destruction and removal, for which purpose many harsh and injurious drugs and absurd measures have been resorted to.

When veterinary science became an object of study, and the habits of parasitic animals became better known, it was quite natural that opinions so unfounded or at least exaggerated, and practices so unscientific and absurd as well as injurious, should lead to a reaction; and according y some of the earliest writers on veterinary medicine, such as Bracy Clark, Professor Coleman, &c., went to the opposite extreme, and maintained that bots in the stomach (gastric œstri,) probably tend to preserve health and counteract disease, by their gentle stimulus to the stomach; that the irritation caused by them might probably act somewhat after the manner of leeches and cantharides, so as to prevent or subdue attacks of inflammation in the eyes or lungs, or other organs, or the existence of spasms, splints, &c. Mr. B. Clark was so confident that bots were rather beneficial than otherwise to the health and good condition of horses, that in the case of a horse of his own which had not been to grass for some years, and, of course, very much out of the reach of the bot-fly or the bee, he cut off hairs from another horse charged with bot's eggs, and gave him about three dozen of them. He states that the horse "afterwards grew fatter and in better condition than I had ever known him; whether from their effect or not I do not undertake to determine, but think it not im-

probable that they contributed to it." This was going as far as could be done with any plausibility, in a direction opposite to the opinion usually prevailing, and is considered by Professor Gamgee, the writer of the article under notice, to be about as remote from the truth, as the vulgar prejudices and harsh practices which originated it, as a protest and reaction.

Professor Gamgee having had occasion for many years to import horses from Italy into England, in the former of which countries bot-flies are much more plentiful than in the latter, has had opportunities of observing these two facts—first, that the stomachs of young horses from Italy that have been out at grass in the season of æstrees or bot-fly, are usually lined with bots; and, secondly, that these horses do not thrive for several months, or until a portion at least of this accumulation of bots in the stomach has been removed. Horses in Italy are usually unfit for work until they have been a year or so in the stable, or out of the reach of bot-bees.

From these and similar facts Professor Gamgee has come to the conclusion that summer grazing, at least during the season that bot-flies are abundant, is more likely to be a source of injury than a benefit to horses; that yearling colts are probably often prevented from thriving because they get the eggs of the bot-fly into their stomachs, which thus become filled with bots; and that the attacks of the bot-fly should in every way be guarded against, because bots are very certainly injurious to the health and good condition of horses.

To this we may add that a correspondent, who has had a horse always in good health, for about fourteen years, has informed us that he has taken some pains almost every autumn to pick off by hand such of the eggs of the bot as could not be removed by currying, and that he thinks the good condition of his horse, even at the age of about eighteen, is very probably somewhat owing to this carefulness in diminishing the number of bot-eggs. He has further informed us that he usually succeeds in bringing away bots from other horses, by means of feeding them with green cornstalks, while by the same means but very few seem ever to be removed from the horse which is more particularly cared for as above stated.—*Country Gentleman.*

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How to Know the Age of a Horse.—The colt is born with twelve grinders.—When four front teeth have made their appearance, the colt is twelve days old; and when the next four comes forth, it is four weeks old. When the corner teeth appear, the colt is eight months, and when the latter have attained to the height of the front teeth, it is one year old. The two year old colt has the kernel (the dark substance in the middle of the tooth's crown) ground out of all the front teeth. In the third year the middle front teeth are being shifted; and when three years old these are substituted by the horse teeth. The next four teeth are shifted in the fourth year, and the corner teeth in the fifth. At six years the kernel is worn out of the lower middle front teeth, and the bridle teeth have now attained to their full growth. At seven years a hook has been formed on the corner teeth of the upper jaw; the kernel of the teeth next to the middle fronts is worn out, and the bridle teeth begins to wear off. At eight years of age the kernel is worn out of all the lower front teeth, and begins to decrease in the middle upper fronts. In the ninth year the kernal has wholly disappeared from the upper middle front teeth, the hook on the corner teeth has increased in size, and the bridle teeth lose their points. In the tenth year the kernal is worn out of the teeth next to the middle fronts of the Upper jaw; and in the eleventh year the kernel has entirely vanished from the corner teeth of the same jaw. At twelve years old the crown of all the front teeth in the lower jaw has become triangular, and the bridle teeth are much worn down. As the horse advances in age the gums shrink away from the teeth, which, consequently, receive a long narrow appearance, and their kernels have become metamorphosed into a darkish point, grey hairs increased in the forehead, over the eyes, and the chin assumes the form of an angle.—*Practical Farmer.*

Draining Match—On the 28th December an important agricultural Draining Match took place on the Duke of Sutherland's estate at Trentham, Staffordshire.—Three premiums were offered of £5, £3, and £2, respectively, for digging drains; the prizes to be awarded to the three workmen who should cut forty-eight yards of draining four feet deep, in the most workmanlike manner, with the least unnecessary excavation

of earth, and without occupying more than four hours in the execution. Twenty-six sets of candidates from various counties in the kingdom competed. Parties gaining the first prize completed the work in 3 hours. 56 minutes; second prize, 3 hours 59 minutes; third prize, 4 hours. The execution of the work generally, is said to have been very superior; many of the unsuccessful candidates' work being equally well done, but occupying more time. Two prizes were given for laying down the pipes, of £2 and £1 respectively; and owing to the number of competitors the distance was reduced from 48 to 24 yards. The person taking the first prize completed the work in 5 minutes; second, in 5½ minutes, and the third was highly commended, occupying 6 minutes. All the unsuccessful candidates were liberally rewarded for their labor, and at the termination of the work were sumptuously entertained. A large number of spectators, including many of the nobility and gentry was present, and appeared highly delighted with the performance.

The Fat Cattle and Root Show of the Royal Dublin Society.—The late Exhibition of this venerable society, the oldest, we believe, in the United Kingdom, was highly successful. The cattle were well bred and sufficiently fattened for all useful purposes. Some Stock from a cross between the Shorthorn bull and West Highland cow were much admired; they are said to possess the symmetry and shape of the former, with the external rough coat and interior good beef of the latter. In roots the show was unrivalled; the soil and climate of Ireland, with good culture, produce crops of potatoes, turnips, cabbage, mangels, &c., superior not only to any other portion of the United Kingdom, but, perhaps, to any part of the world. From fifty to sixty tons of Turnips and mangels per statute acre are not uncommonly raised in the vicinity of Dublin.

Exmoor Ponies.—At the recent Brampton Fair the four-year old ponies averaged £15 10s each. Some of the picked reached £30 each; these prices being considered good for rough animals that had lived on wild grass which nothing else would eat.

Sale of Mr. Overman's Flock.—This celebrated breeder of South Downs, of forty years standing in the county of Norfolk, has disposed of his entire flock, consisting of 749 animals, himself retiring from business. Highest price of Shearling Ewes, 8¼ guineas; four toothed, 5½ guineas; several lots reached from 4 and 5 guineas; six-toothed or full mouthed Ewes, 4¼ guineas; Ewe-lambs, 2½ guineas; Shearling Rams, 30 guineas, several fetching from 20 to 27 guineas; two Shear Rams 45 guineas; three Shear Rams, 18 guineas; four Shear Rams, 7 guineas; Ram Lambs, 14 guineas, many went a from 4 to 8 guineas. Mr. Overman resides in the agriculturally-classic Holkham district, on which the genius of the late Lord Leicester—better known as Coke of Holkham, conferred such lasting benefits. His flock contained several animals derived from the flock of the world renowned Jonas Webb of Babraham.

Mr. Chapman's New Herd of Shorthorns.—We are pleased to learn that Mr. Chapman, of Clarkville, Madison Co., N. Y., has resumed the breeding of Shorthorns, in which class, for a number of years, he produced some very superior specimens; several having been purchased by Canadians, by whom his former stock was highly appreciated. We heartily wish Mr. Chapman, who is an honest, straightforward dealing man, every success in his renewed efforts. The *Country Gentleman* observes:—"Mr. Chapman has secured the entire herd of Thomas Richardson, of West Farms, Westchester co., N. Y. Most of this herd were imported by Mr. Richardson with his characteristic liberality, and without regard to expense. They count among their sires such bulls as Baron Warlaby (7813)—Crown Prince (10,087)—Hector (13,002)—Hopewell (10,332)—Royal Buck (10,750) &c., &c., all bulls of great celebrity both in England and in this country. This herd is perhaps more deeply bred in the celebrated Booth blood than any herd in this country, and as Mr. Booth now refuses to *sell* any more male animals from his herd, they cannot at this time fail to be well appreciated. They are now all at the "Mount Pleasant Farm," excepting Lady Constance, which will be sent out soon. Mr. Chapman will be pleased to show the herd to all persons who feel an interest in fine stock."

Wheat as food for Cattle.—The present low price of grain, more particularly of Wheat, in England, has led many farmers to use the latter for fattening stock. A Suffolk correspondent of the *Mark Lane Express* says: "I venture to offer you my experience on the value of *wheat as the cheapest and best food* you can at the pre-

sent time consume, for grazing bullocks and pigs. A peck of wheat per day (boiled) will graze an ox, with the addition of a small quantity of roots, faster than the *same value* of the best linseed cake. I am also feeding all my cart horses upon it, and never saw them look better, or kept them at less cost."

Distinguished Potatoes.—In Gerard's time, 1597, Virginian Potatoes, as they were then called, were just beginning to be known. A sweet potatoe had been previously known, which was used as a kind of confection at the tables of the rich. Of these Gerard says, "They used to be eaten rosted in the ashes; some, when they be so rosted, infuse them, and sop them in wine; and others, to give them the greater grace in eating, do boil them with prunes and so eat them. And likewise others dresse them (being first rosted) with oil, vinegar and salt, every man according to his own tastes and liking; notwithstanding howsoever they be dressed, they comfort, nourish, and strengthen the bodie." They were sold by women, who stood about the Exchange with baskets. The same writer says of the common potato, which, for a considerable time after its introduction was a rarity, that, "It was likewise a foode, as also a meete for pleasure, being either rosted in the embers, or boiled and eaten with oile, vinegar, or dressed anie other way by the hand of some cunning in cookerie." They were originally the size of walnuts.—*Philp's Progress of Agriculture.*

# Horticultural.

Fruit-Growers' Association of Upper Canada.—The want of some means by which the horticultural societies of the province might combine their separate influences, and thus advance the interests of the lovers of fruit, has been for some time experienced. Steps were taken during the late Provincial Exhibition in Toronto for the establishment of a central organization, and a Committee was appointed, consisting of a number of leading fruit-growers, to draft a Constitution and By-laws, to be submitted to a meeting to be held here on third Wednesday in January. This was accordingly done, and an Association organised, bearing the name of "The Fruit Growers' Association of Upper Canada," whose objects are "the advancement of the science and art of fruit culture, by holding meetings for the exhibition of Fruits and the discussion of all questions relative to Fruit culture, by collecting, arranging and disseminating useful information, and such other means as may from time to time seem advisable"

The means for collecting information in relation to the subject appear to us very simple, and likely to be efficient. They are the establishment in each county of separate sub-committees, to consist of the Presidents of the Horticultural Societies it contains, and of two other gentlemen who may or may not be members of such societies; which Committees are to transmit semi-annual reports to the Central Committee.—Thus the experience of individual Fruit Growers all over Canada may be collected and disseminated for the good of the whole community. Need we say that we wish success to an Association with such objects.

The officers elected for the first year are as follows:—
*President*—Judge Campbell, Niagara.
*Vice Presidents*—J. Hurburt, L. L. D., Hamilton, and Geo. Leslie, Esq., Toronto.
*Recording Secretary.*—Arthur Harvey, Esq., Hamilton.
*Corresponding Secretary.*—J. D. Humphreys, Esq., Toronto.
*Treasurer.*—Ed. Kelly, Esq.

The local committees throughout the country are not yet fully organised. The representative members for York and Peel are Messrs. Gray and Fleming; those for Wentworth—Messrs. Freed and Meston; those for Brant—Messrs. Arnold and Wilson.

The Sub-Committee on management consists of Messrs. Fleming, Hulburt, and Les-

lie; that on orchard fruits, of Messrs. Arnold, Leslie and Kelly; that on other fruits, of Messrs. Gray, Meston, and Freed; that on publication, of the Secretaries, and Dr. Hurburt.—*Hamilton Spectator.*

Moral of the Garden.—Nothing teaches patience like a garden. All have to wait for the fruits of the earth. You may go around and watch the opening bud from day to day; but it takes its own time, and you cannot urge it on faster than it will. If forced, it is only torn to pieces. All the results of a garden, like those of life, are slowly but regularly progressive. Each year does a work that nothing but a year can do. "Learn to labor and to wait," is one of the best lessons of a garden. All that is good takes time, and comes only by growth.—*Farmer's Magazine.*

Risks of Horticulture.—It is very easy for a writer to say that cauliflowers like rather a stiff and heavily-manured loam, and beet a very deep and fine mould, in which there is no recent manure; but the fact is, there are many other conditions essential, and we cannot judge fairly of the growth of anything in a soil until that thing has actually been tried in it. Tell me where, within a telescopic view of the metropolis, can they grow clover as they do in Hertfordshire; or where did you ever see such celery as they raise in the rich loams beside the Thames, a little to the west of London? The same cart-load of mould put down on the Kentish chalk would produce a very different result to what would follow were it shot on the gravel of Hampstead; and if you get into the Fen country, you might find gardening quite a different affair to what it would be on the sides of Malvern Hills. Therefore, before you risk much in seed, and labor, and rent, make a fair guess as to the nature of the crops best adapted to your position. If you grow for market, you must be very much guided by the nature of the demand for certain articles. A man may grow strawberries for Covent-garden, and get three shillings an ounce one day, and sixpence an ounce the next, and these fluctuations must be taken account of by the man who intends to speculate in allotment and garden culture.—*Floral World and Garden Guide.*

The Trade in St. Michael's Oranges.—The Orange is one of a numerous family of fruits, produced by handsome evergreen trees, bearing fragrant flowers, and peculiar to countries within the tropics, or enjoying an almost tropical climate. The lime, the lemon, and the citron, all belong to the orange family, and to these are to be added the forbidden fruit and the shaddock, the largest members of the tribe. In all, there are said to be no less than seventy-five different species of oranges alone, of which the St. Michael, the blood-red, the Maltese, the Mandarin, and the bitter or Seville orange are the kinds most commonly imported into this country. Our own experience of the grateful and refreshing juice of the orange will easily enable us to understand the high estimation in which it is held by the parched inhabitants of its native climates, where growing in rich profusion, it may be said to be rather a necessity than a luxury of life. In the days gone by, when steam and electricity were slumbering agents, our supply of oranges came to us almost exclusively from Spain and Portugal; but now the Azores and the Madeira Islands alike send us their rich cargoes, while others reach us from Crete and Malta. The St. Michael orange is cultivated, as its name implies, in the island of St. Michael, one of the Azores, or Western Islands, and is also grown in other islands of the same group. The culture of the orange in these islands is now a regularly established branch of industry, and the inhabitants depend almost entirely on the produce of their quintas, or orange gardens, for the means of subsistence. A quinta may belong to a poor man, and contain only a few trees; or it may be in itself a large property, and have as many as a thousand. The trees are planted at about twenty-five or thirty feet apart, in regular rows, protected by tall shady hedges. They take seven years to arrive at maturity, and from that age, if properly cared for, continue to bear well till they attain to a great size and an enormous age. In good seasons some of the larger trees yield as many as twenty boxes, of a thousand oranges each, and as many as 20,000 fruit have been known to be gathered from one of these prolific trees. No wonder that, during the ripening season, large supports have to be placed under the branches, to prevent them from being torn away from the trunk by the great weight of plump and juicy fruit that grows amidst their glossy foliage. The quintas of the Azores are in full blossom in the month of April. By October the most forward oranges begin to ripen, and in November the first gathering is made for the London market. The orange harvest occurs in January and February; and by the end of the

latter month the trees are cleared of their juicy burden, and most of the fruit has been despatched from the islands. In Spain and Portugal the same mode of culture is practised as in the Azores excepting that there no fences are required to shade the trees. The orange trees of these countries, however, are of greatly inferior size, and the average yield proportionably less, the usual annual crop of one of the Seville trees being about 8,000.—*Hogg's Instructor.*

## Miscellaneous.

Saltness of the Ocean.—Whence did the ocean derive its saltness? We can only surmise that it was from the immense strata of salt formerly existing in vast basins now occupied by its waters. Such strata, as has been already noticed, exist in England, Poland and elsewhere; and if by any mighty shaking of our globe, that which is now land were to become the bottom of an ocean, to be formed from the influx of subsequent floods of rain and rivers, enough salt would be supplied from strata of salt already known to render that post-millenial ocean gradually as saline as the present.—*Johnson's Chemistry of the World.*

Libraries.—Are the shrines where all the relics of ancient saints, full of true virtue, and that without delusion or imposture, are preserved and repose.—*Lord Bacon.*

Future Progress.—There were times when man having but meagre knowledge, and rare opportunities of acquiring it, the onward march of improvement was made by timid and irregular steps; that which was gained in one generation was frequently willingly relinquished in another. The mind of man was so weak that it dare not grapple with things unknown; but the time has come, thanks to those heaven-born spirits who led the way to the assault of Ignorance, when men have not only shaken off their chains, but made useful tools of the fetters that bound them. The whole people is now at school; millions of papers and tens of thousands of books are their daily teachers. If men could grope their way from the darkness of the past, and accomplish so much good in spite of vast impediments, what are they likely to do, now that they have kindled the lamp of knowledge, and can see their way into the broad avenues of the future.—*Philp's History of Progess in Great Britain.*

Effect of Climate on Nations.—It is certain that excessively hot climates are unfavourable to the population, wealth, civilization, refinement and general prosperity of nations; for although the tropical zone abounds with delicious fruits and other aliments, it is deluged with rains for six months, attended with dreadful hurricanes, and parched with drouth during the remainder of the year; while the frequency of earthquakes and volcanic erruptions causes the overthrow of many cities and the destruction of many thousand lives, not to mention the pestilential character of the atmosphere.—Such is the deleterious influence of the torrid zone on the growth of population, that in the vast continent of Africa it does not exceed 57,000,000, or, if we take the estimate of Balbi, 60,000,000, on a territory of 11,000,000 square miles, a large proportion of which is found above north lattitude 30 degrees, where the mean temperature of the year varies from 78 to 98 degrees, and where consideroble advances have been made in wealth, civilization, arts, sciences and social improvements as in ancient Egypt, Carthage, and other Phœnician states.—*Metcalf on Caloric.*

Horses *vs.* Oxen.—No one who observes the working of both animals together at general farm work, but must acknowledge the superiority, in point of quickness, of horse over ox-power—and "time is money," here as elsewhere.

Produce of Corn in ancient Times.—The returns of seed sown, as mentioned by ancient authors, are very remarkable. A hundredfold, Verro informs us, was reaped about Garande, in Syria, and Bysacium, in Africa. Pliny adds, that from the last place there were sent to Augustus, from his agent, nearly 400 stalks, all from one grain, and also 340 stalks. He says he has seen the soil of this field, "which, when dry, the stoutest oxen cannot plough; but, after rain, I have seen it opened up by a share, drawn by a wretched ass on one side and an old woman on the other." The re-

turns in Italy were much less extraordinary. Varro says, "There were sown on a jugerum four modi (pecks) of beans, five of wheat, six of barley, and 10 of far (maize), more or less, according as the soil is rich or poor." The produce is in some places ten after one, but in others, as in Tuscany, fifteen after one. This, in round numbers, is at the rate of 21 and 32 bushels on an English acre. On the excellent soil of Leontinum, in Sicily, the produce, according to Cicero, was no more than eight to ten for one. In Columella's time, when agriculture had declined, it was still less.

Noises in the Sick Room.—It is extraordinary how many persons, unused to the sick room, mistake certain noises for quiet. When such people have to walk across the room, they do so with a balancing sort of movement that makes every plank creak uneasily. Their very dress rattles in a way that would make the fortune of a rattlesnake. If anything has to be said it is spoken in a loud, whirring whisper, that nearly conceals the words, but makes the most irritating of noises. Now the silence of a sick room must not be laboured, it must be natural. Shoes that do not creak must be worn, and in walking the foot must be put down carefully, of course, but with a firm step, that comes gently, yet steadily, on the floor. This will not make the creaking sound caused by the toe-pointed, gingerly mode of movement so much adopted by those whose experience of sick rooms is small. The dress must be made of some noiseless material, wool or cotton; silk must be avoided, for it squeaks with every movement. In speaking, the pitch of the voice must be slightly raised, and the words, instead of being hissed in whispering, should be clipped short, and cut distinctly. By this means the persons spoken to will hear what is said, while the least possible sound accompanies the word.—*Barwell's Cure of the Sick.*

Physical changes and personal identity.—The 116lb weight of water which forms three-fourths of the matter composing our bodies is rejected with great rapidity in respiration and natural discharge. The carbon is expired with each action of the lungs in large quantities, combined with oxygen, another constituent of our bodies, in the form of carbonic acid. The lime escaping in other ways is rejected from our bones and replaced by a fresh supply. There is not a movement of the body, whether voluntary or involuntary; not an action of a member, a muscle, or a nerve; not a pulsation of the heart or artery; not a peristaltic motion of the intestines, which is not the proximate cause of the rejection of used-up matter and the demand for a fresh supply from the digestive apparatus, just as in a machine the wear and tear of the parts is proportional to the force and continuance of their motions. Although the rapidity with which the materials of the body are thus changed varies, in comparing one individual with another, according to their varying habitudes and occupations, it appears that a total change of the material constituents of the body takes place within an interval much shorter than was supposed by the early physiologists. According to some authorities, the average length of the interval does not exceed thirty days. It is, however, generally agreed that it is a very brief period. This, then, being the case, let us again ask what is it that was identical in the Duke of Wellington dying at Walmer, in September, 1852, with the Duke of Wellington commanding at Waterloo in June, 1815. Assuredly it was not possible that there should have been a single particle of matter common to his body on the occasions. The interval consisting of a period of thirty-seven years and two months, the entire mass of matter composing his body must have undergone a complete change several hundred times; yet no one doubts that there was something there which did not undergo a change, except in its relation to the mutable body, and which possessed the same thought, memory, and consciousness, and constituted the personal identity of the individual; and, since it is as demonstrable as any proposition in geometry that something which thus abode in the body, retaining the consciousness of the past, could not have been an atom, or any number of atoms, of matter, that is to say, something spiritual.—*Dr. Lardner.*

Sympathy of the Nerves.—When the nerves from long habit have been accustomed to transmit their messages from distinct parts, and are suddenly cut off from them, they still retain along with their trunk the sympathetic or sensational actions. Thus, a man who has had a leg amputated will feel distinctly along the course of the trunk of the nerve sensation from toes which no longer exist. The mind also is influenced by this; and frequently this peculiar direct nervous action can only be allayed by that which is negative and reflex. A curious instance occurred within my own experience. An old sailor suffered much from this; he retained his diseased foot too long, but at

last consented to amputation. I knew him only with a woeden leg. When he had his nervous pains, he always called for hot water, into which he put his wooden stump. If told of his folly in supposing that such a proceeding could do any good, he would become enraged, and his paroxysm of pain would increase; but if gratified, he took things easy, and the process actually seemed to do him good, though all must know there could be no real benefit. Still here is the effect of mind over mater.—*Ridge on Health and Disease.*

The Climate of Australia.—There are days, and in some years whole weeks together, of delightful weather, cool and bracing as the spring in England, but more beautiful and exhilarating. Excepting about twenty-five extremely hot days, and sixty disagreeable wet or cold days, the weather throughout the year is indescribably pleasant, the air is balmy and bright, scarcely a cloud is visible, and the sun looks down from the deep blue sky in unveiled splendor. Day and night are nearly equal lengths throughout the year. The sun never remains above the horizon more than about fourteen and a half hours, nor less than ten and a half; and, as twilight does not linger in these latitudes, the changes from day to night, and from night to morn, are to Englishmen unpleasantly abrupt. The nights are enchanting. The southern constellations shine forth from the hard dark heavens in unrivalled brightness, and the haloed moon pours her chastened radiance on the plains and hills with such refulgence, that everything for miles around is distinctly visible. The light of both the sun and moon is more intense than in Britain. I should say the difference is as five to three.—*F. Lancelott, Esq.*

How to Burn Coal.—*Graham's Magazine* has an article on coal buying and burning, from which we select the following:—"The great mistake of all is to put on too much coal, as if it were wood—the greater the quanty, the greater the heat. If too much coal is applied, the combustion is necessarily imperfect, because the fire is 'choked up,' the draught destroyed, and the elements of the coal slowly escaping from it, pass off to the chimney unconsumed, or disseminated in gases through the room. Whereas, if the strata of coal be but moderate, a red flame will play around the interior of the stove, by which entire combustion and a healthy heat are secured. One ton of coal, therefore, by thorough combustion, will often secure more heat, and a healthier atmosphere, than two tons consumed in the ordinary way; and this is a fact which can easily be demonstrated." It will be very important, this winter especially, to have attention paid to this rule.

Windows opened more would keep Doctors from the Door.—A very large quantity of fresh air is spoiled and rendered foul by the act of breathing. A man spoils not less than a gallon every minute. In eight hours' breathing a full-grown man spoils as much fresh air as seventeen three-bushel sacks could hold! If he were shut up in a room seven feet broad, seven feet long, and seven feet high, the door and windows fitting so tightly that no air could pass through, he would die, poisoned by his own breath, in a very few hours; in twenty-four hours he would have spoiled all the air contained in the room, and have converted it into poison. Reader, when you rise to-morrow morning, just go out of doors for five minutes, and observe carefully the freshness of the air. That air is in the state in which God keeps it for breathing.—Then come back suddenly into your close room, and your own senses will at once make you feel how very far the air of your chamber is from being in the same wholesome and serviceable condition.

The Sky.—It is a strange thing how little in general people know about the sky. It is the part of creation in which nature has done more for the sake of pleasing man, more for the sole and evident purpose of talking to him, and teaching him, than in any other of her works, and it is just the part in which we least attend to her. There are not many of her other works in which some more material or essential purpose than the mere pleasing of man is not answered by every part of their organization; but every essential purpose of the sky might, so far as we know, be answered, if once in three days or thereabouts, a great, ugly, black, rain-cloud was brought up over the blue, and everything well watered, and so all left blue again till the next time, with perhaps a film of morning or evening mist for dew. And instead of this, there is not a moment of any day in our lives when nature is not producing scene after scene, picture after picture, glory after glory, and working still upon such exquisite and constant principles of the most perfect beauty, that it is quite certain it is all done for us, and intended for

our perpetual pleasure. And every man wherever placed, however far from other sources of interest or beauty, has this doing for him constantly. The noblest scenes of the earth can be seen and known but by few; it is not intended that man should live always in the midst of them; he injures them by his presence; he ceases to feel them if he be always with them: but the sky is for all; bright as it is, it is not

Too bright, nor good,
For human nature's daily food;

It is fitted in all its functions for the perpetual comfort and exalting of the heart, for soothing it, and purifying it from its dross and dust.—*Ruskin.*

Home Manufactures.—We are glad to learn that the extensive Ontario Mills at Cobourg are again in full operation, turning out it is said not less than six hundred yards of cloth per day. An establishment of this character and magnitude possesses far more than a mere local importance, its success or failure must necessarily affect more or less the interests of the entire Province. In former years some of the best woollen cloths were turned out of this factory; they were better suited to domestic consumption and more durable than most of those we have been in the habit of importing. Home manufactures not only transform the wool, skins, and other crude materials raised by the farmers, into useful and costly fabrics, but they create a large domestic consuming population; thereby enabling the farmer to dispose of his various productions at the highest rates and in a home market. In reference to this long closed factory the *Cobourg Sun* describes: "The five stories as no longer presenting a huge and empty pile of brick walls with silent machinery. The hum of the spindles and the clank of the looms, strike the ear of the pedestrian, while a closer inspection of the interior shows over sixty active operatives diffusing a vital energy through every corner of the building, while engaged in the honorable employment of manufacturing for Canadians handsome and durable textures from the crude fleeces of our own flocks."

Pleuro Pneumonia.—This destructive disease, sometimes called "the Lung Sickness," appears from recent accounts to be committing fearful ravages among horned cattle in the southern and eastern portions of Africa, to which continent its periodical recurrence and most fatal effects appear to be principally restricted. Australia is generally remarkably free from cattle disease, and we are not aware that this complaint has made it appearance among our cattle here in Canada, or in the United States. It has lately reappeared in Ceylon, with destructive effects; and its ravages in Europe for several years past, have been severely felt. As the British Islands have not been exempt from its visitations, it is quite possible that the disease (which is generally regarded as highly infectious) may by means of importations, or otherwise, reach this continent, and it becomes desirable that our farmers should be made acquainted with its general characteristics and mode of treatment. In Europe, thousands of the finest cattle have fallen victims to this fearful malady, while in Africa it appears that a loss of one half of their immense herds, is of no uncommon occurrence, and even among the inhabitants themselves, a pestilence has been spreading from eating of the meat that was slightly diseased.

The more usual symptoms of the disease are the following: "The animal will carry its head in a peculiar low manner, its neck well straightened, considerable inflammation of the eyes and nostrils, sometimes accompanied by cough, the ears hang,—the whole appearance of the animal is restless and fidgety. In a day or two it refuses to eat. About the eight or tenth day it begins to swell, and to eat and drink voraciously for a few hours, and then if it dies with the disease at its height, strangulation takes place."

The chief prevention is said to be inoculation. The greatest care must be exercised on taking the virus from an animal in the earlier stage of the disease, and to transfer it into one that appears to be entirely free; otherwise the remedy may only accelerate the malady. The operation is performed in the dewlap, or more commonly in the tail, towards its extremity. To prevent the serious inflammation that would arise from extending upwards into the body, the remaining stump after a while is amputated. In England the rubbing well into the nostrils of a diseased animal as soon as suspected, from half a pound to a pound of Stockholm tar, with a handful or two of salt, has been found highly efficacious. Several eminent European physiolo-

gists and veterinary surgeons have been directing their attention to the investigation of this virulent epidemic, the efficient treatment of which is yet a matter of much doubt and difficulty.

Hog Disease.—Mayor Tiemann, of New York, on Friday last received information that an epidemic had broken out among the hogs at a distillery in a small village in New Jersey. It is stated that nearly 100 hogs are carried off by the disease daily, and that as soon as the keepers of the pens observe the animals stagger, they knock them on the head. The carcases are dressed and sent to the New York market. What become of them, says the Journal of Commerce, we leave to the imagination of pork eaters.

The Camel in America.—We have taken no little interest in the naturalization of the camel among us, and have more than once expressed the hope that, in addition to the Government experiment going on so successfully, an attempt might be made to employ camels for private purposes. The first step to this, we are glad to see, has been undertaken by Mr. Weston, an enterprising gentleman who has imported upward of a hundred camels for this purpose, several of which he now has on exhibition at New Orleans, in hopes to sell them to be used on Louisiana plantations. How far the camel may be adapted to the wet and often muddy banks of the Mississippi is, perhaps, questionable. The structure of the camel's foot is not well suited to a muddy surface; yet we should suppose there must be many cotton plantations all through the South, whose products are transported to some point of shipment by land carriage over the sandy plains which border the Southern coast, that would find the camel especially serviceable for that purpose. A common camel could easily carry two bales of cotton strung over its back, saddle-bag fashion, while the largest and strongest might carry four bales. It is, however, in that half of our territory, west of the 100th parallel of longitude—a region of drouth and deserts—in which the camel will prove most useful, and to the successful settlement of the fertile parts of which its naturalization may be considered as almost indispensable.—*N. Y. Tribune.*

Relief of Neuralgia.—As this dreadful disease is becoming more prevalent than formerly, and as the doctors have not discovered any method or medicine that will permanently cure it, we simply state that for some time past a member of our family has suffered most intensely from it, and could find no sure relief from any remedy applied, until we saw an article, which recommended the application of bruised horse radish to the face, for toothache. As neuralgia and the toothache are both nervous diseases, we thought the remedy for the one would be likely to give relief to the other, so we made the application of horse radish, bruised and applied to the side of the body where the disease was seated; it gave almost instant relief to the severe attack of neuralgia. Since then we have applied it several times, and with the same gratifying results. The remedy is simple, cheap, and may be within the reach of every one.—*Laurensville Herald*

Feeding Horses.—The towing of boats on the Erie Canal is done in part by horses that are taken along with the boats, and partly by towing companies, who keep their horses at stations about twelve miles apart, along the whole length of the canal.—There are three of these towing companies, and they employ about one thousand four hundred horses. They have found, after great experience, that the most economical and best feed for their horses is a mixture composed of equal parts, by measure, of corn meal and mill feed—bran or shorts, weighing about twenty pounds to the bushel, mixed up wet with cut hay, and they accordingly, feed this all together.

Creosote for Warts.—Dr. Rainey of St. Thomas's Hospital, London, has furnished a communication to the Lancet, detailing the effects of creosote applied to warts. He applied it, among other instances, to an obstinate warty excrescence on the finger, and then covered it over with a piece of sticking-plaster. This course he pursued every three days for two weeks, when, on examination, the wart was found to have disappeared, leaving the part beneath it quite healthy.

The American Meat-Biscuit.—It is stated that 10lbs. weight is sufficient for the subsistence of an active man for 30 days, and that it has been used in the American navy, and has been found to sustain the strength of the men to whom it has been given, in a remarkable degree. Colonel Sumner, an officer in the United States' Dragoons,

who had seen it used during field operations, says he is sure he could live upon it for months, and retain his health and strength. The inventor, he says, names five ounces a day as the quantity for the support of a man; but he (Colonel Sumner) could not use more than four ounces made into soup, with nothing at all added to it. The substance of these statements may be said to amount to this—that Borden's meat-biscuit is a material not liable to undergo change, is very light, very portable, and extremely nutritious. A specimen placed in the hands of Dr. Playfair for examination was reported by him to contain 32 per cent. of flesh forming principles; for it is a composition of the essence of meat and the finest kind of flour. Dr. Playfair stated that the starch was unchanged; that consequently there could have been no putrescence in the meat employed in its preparation, and that the biscuit was "in all respects excellent." The jury and others tasted it, and found in it nothing which the most fastidious person could complain of. It required salt, or some other condiment, as all these preparations do, to make them savory. No foreign matter had been introduced into its composition; there was no salt to absorb moisture, and nothing else to interfere with the property of flour or of essence of meat. These biscuits are prepared by boiling down the best fresh beef that that can be procured in Texas, and mixing it in certain proportion with the finest flour that can be there obtained; it is stated that the essence of 5 lbs. of good meat is estimated to be contained in 1 lb. of biscuit.

Scotland Under-Peopled.—Allowing for the coldness of the northern climate, as well as for the necessary sterility of the hills, on the one hand, and on the other for the salubrity of the air, for the energy of the inhabitants, for the mineral wealth, for the adaptation of the country, covered by water-power in its mountain streams, to furnish healthy sites of manufactures and towns of various kinds, the conclusion appears to be inevitable, that Scotland is under peopled, and that its resources have not yet been developed to the same extent as the resources of England.—*Census Report.*

# Editorial Notices, &c.

Shorthorns for Sale.—It will be seen by advertisement that the Hon. A. Fergusson has for sale several of his Shorthorn Cattle. Mr. Fergusson has long been distinguished as a successful breeder of this kind of Stock from the best blood, his herd has always been select, and, what we conceive to be a great recommendation, for breeding purposes especially, his animals are not pampered, but reared and fed in the ordinary way.

Alsike Clover, and Agricultural and Garden Seeds generally.—We beg to call the attention of our readers to Mr. Fleming's advertisement on the cover of this number. The Alsike clover is highly approved of in Europe, and so far as it has been tried in this country, the results have been satisfactory and encouraging. Mr. Fleming, it appears, has availed himself of the facilities which our new postal arrangements afford in the delivery of parcels, by putting up collections of garden and flower seeds at a fixed price, including postage, which can be readily sent to any post office in the Province. This will be felt as a great convenience, as people in the country can now depend on being supplied with a suitable assortment of genuine seeds at a reasonable price.

The Gardeners' Monthly And Horticultural Advertiser.—We have received the second number of a handsomely got up periodical under this title. It is of quarto size, printed on good paper and liberally and neatly illustrated with wood cuts. It is devoted to Horticulture, Arboriculture, Botany and Rural Affairs. We believe it is the first attempt at a very cheap publication devoted almost exclusively to Horticultural pursuits on this side of the Atlantic, the price being only one dollar per annum,

and judging by the two numbers which have appeared, it is fully entitled to the public support. The publication office is No. 23 North Sixth Street, Philadelphia.—Editor, Thomas Meehan.

Landscape Gardening.—We have much pleasure in stating that Mr. Edwin Taylor, as appears by advertisement, has commenced the business of giving plans, laying out and ornamenting grounds, villas, parks, cemeteries, &c., in Canada. Since the lamented death of Mr. Mundie, there has been a want felt in this respect, and as Mr. Taylor brings with him the highest testimonials as to character and ability, from the old country, we have reason to hope that he will meet with adequate encouragement.

The Rural Annual and Horticultural Directory for 1859.—This new number of the Rural Annual, Edited by Joseph Harris Esq., of the well known *Genesee Farmer*, is replete with interesting and useful matter, clearly printed, and profusely illustrated. Single copies only 25 cents.

The Illustrated Annual Register of Rural Affairs for 1859,—Edited by J. J. Thomas.—We are glad to see this useful and beautifully illustrated annual continue to improve and extend its beneficial influence year by year. It is published by Luther Tucker and Son, Albany, to whose enterprise and discriminating judgment, the agriculturists, horticulturists, and machinists of this continent are deeply indebted for the diffusion of a cheap and sound agricultural literature. This annual, when quality and execution are considered, is a marvel of cheapness, only 25 cents per copy. We owe it to our readers strongly to recommend this and the preceding publication. To clubs, both Mr. Harris and the Messrs Tucker offer their annuals in connection with the *Genesee Farmer*, and *Country Gentleman*, and *Cultivator*, on the most liberal terms.

How to Farm Profitably—London: Routledge & Co.; Toronto, A. H. Armour and Co.—This is a very neatly executed little volume of the sayings and doings of Mr. Alderman Mechi, by the worthy Alderman himself. The author has long enjoyed a world-wide fame, and the substance of his numerous papers and addresses on farming, with a clear and succinct description of his own system as carried out on the celebrated Tiptree estate, are embodied in the present cheap and interesting volume, nicely illustrated with a portrait of the author, for the marvellously low price of half a dollar. Here again is cheap and useful literature for the cultivators of the soil.

The Michigan Farmer, long known as one of the best agricultural monthlies, is now published as a weekly, at $2 per annum, for single copies. Its matter and "getting up" are highly creditable to all concerned in its publication.

Speaking of weeklies we must not omit to mention The Country Gentleman, published by Luther Tucker & Son, Albany; Moore's Rural New Yorker, of Rochester; The Boston Cultivator, and the Maine Farmer, which have all commenced the new year with signs of increasing vigour and usefulness. The "Country Gentleman," in particular, when price, quality of matter and mechanical execution are considered, is certainly not surpassed by any similar periodical in either the old world or the new. We should rejoice to be assured that these weeklies had a wide circulation among the farmers of British North America.

The Farmers' Journal and Transactions of the Board of Agriculture of Lower Canada, has commenced a new, enlarged and much improved series, and is now the official agricultural organ of the eastern section of this Province. The English edition is under the able editorship of James Anderson, Esq, F. S. S. A., &c.,&c., whose former connection with Scottish agriculture and Estate management is favorably known. The French edition is edited by J. Perrault, Esq., Secretary-Treasurer of the Board of Agriculture, who, in addition to his practical knowledge of Lower Canadian farming, has enjoyed the advantages of having studied in the national Agricultural Colleges of England and France. These journals under their new and superior management in connection with the Board, cannot fail, if persevered with as they have begun, to confer important benefits on the agriculture of this Province. We could like to see our farmers in this western section encourage this publication, which can be obtained of the publishers, De Montigny & Co., Montreal, at $1 per annum.

THE

# Canadian Agriculturist,

AND

## JOURNAL OF THE BOARD OF AGRICULTURE

OF UPPER CANADA.

VOL. XI. TORONTO, FEBRUARY, 1859. No. 2.

## WHEAT GROWING IN CANADA.

It has long been a generally received opinion, that by far the largest portion of Upper Canada is, from soil and climate, peculiarly adapted to the production of wheat, particularly the winter varieties. The Genesee country in the neighbouring State of New York has, till recently, been highly distinguished for the abundance and superior quality of its wheat; and we have in our own western peninsular a wide tract of land, extending to the shores of Lake Huron, comprising similar soils, and resting upon the extension of the same geological formations as prevail in western New York. In the centre and west of that State, wheat-culture of late years has been gradually contracted; and in some formerly favored districts, which used to produce thirty bushels and upwards, per acre, this crop has been almost entirely abandoned. Judging from results of the last few seasons, we are in a fair way of following the example. The evil has been gradually, and therefore to some, perhaps, almost unobservedly coming upon us, till of late the crop has been reduced in amount from thirty to forty per cent. below the ordinary average of former years. The yield of last season, as shown some months ago, in the able report on the subject by the pains-taking and efficient Secretary of the Bureau of Agriculture and Statistics, was extremely deficient. And this circumstance, coming in the wake of a commercial panic, almost unparalleled for its sudden and wide spread desolation, is sufficient to account for our present depressed and embarrassed condition.

Without attempting, at present, an analysis of this complex and difficult subject, which has already engaged the serious attention of many of the best statesmen, agriculturists, and men of science, on this continent, we may observe that the two chief proximate causes of the failure in wheat have been the midge and rust. These evils have not taken us by surprise, but have been coming on by degrees; in some seasons more marked than in others, yet, upon the whole, progressively increasing in the extent and intensity of their effects. In the absence of any reliable specific, which the most rigid investigators have hitherto been unable to discover, we may be permitted to offer a few plain and practical sug-

gestions, in the hope rather of mitigating than of effecting an immediate removal of the evil; the latter being, we fear, at present far beyond the reach of human agency.

And *first*, when we properly consider the *extremely imperfect manner* in which land is generally prepared for wheat, and the *short intervals* allowed between the same kind of crops, a certain deterioration both in quantity and quality is a result that might naturally be expected. We have been persevering in the practice of extracting, by incessant grain crops of a near affinity, those various constituents, without a certain proportionate amount of which no soil can be fertile, or profitably cultivated. As rich, virgin soils are commonly found to yield a succession of bountiful crops under a rude and imperfect culture, farmers unwisely and, perhaps, unconsciously, have been induced to persist in the system till they discovered, to their cost, that their land refused its wonted returns. Shallow and imperfect ploughing, with an occasional scratching of the surface and covering the seed by the harrow, in the rudest manner, have too generally been considered sufficient for the mechanical preparation of the seed bed. And in addition to all this, land is too commonly kept in grain crop, without often any kind of manure, till it refuses to yield a profitable return.

*Secondly*—Land intended for wheat should not only be naturally adapted to the plant, and receive a deep and thorough cultivation, and when necessary a proper manuring, but it must also be *sound and dry*. This latter condition is the one most essential, in the absence of which, manures, and the most perfect cultivation will be, to a great extent, thrown away. In wet lands, however rich they may be in all the elements of fertility, *draining* is an essential preliminary to the profitable raising of grain, *especially wheat*. If this simple condition were obtained, we should hear comparatively little complaint of rust, winter-killing, &c. A wet soil is always cold and late, the opposite of which, viz: *warm* and *early*, are of the greatest consequence in wheat-culture.

*Thirdly*—The judicious selection of such varieties of wheat as are suited to particular soils and climate, with an occasional change of seed and strict attention to its purity and uniformity of ripening, are matters which demand special attention. As a general rule *early sowing*, leaving the precise time to be determined by the character of the season, the mechanical and chemical condition of the soil, and local circumstances, is a consideration of by no means secondary importance. If the land be very light and porous, the application of a heavy roller would be beneficial; and sowing with the drill, when practicable, is always to be preferred. The seed is in this way more regularly deposited and evenly covered, thereby securing a greater uniformity in germination, growth and ripening, and rendering the young plant far more secure against the effects, or as it is termed, "heaving out," by the alternations of freezing and thawing in early spring.

We would by no means insinuate that these few but, as they appear to us, most important precautions, would in all situations, and in all seasons, render our wheat crops invulnerable and certain, especially against that now too common and most destructive pest—the midge. But we only utter the words of truth and soberness, as the most careful observation and enlightened experience testify, when we say that natural unsuitability of soil and climate, both of which may frequently be modified by art, want of drainage, sowing wheat too rapidly in succession, or otherwise over-cropping, too late sowing, with imperfect cultivation, and impure, or inferior, dirty seed, are the chief *and often the only causes* of producing a sickly wheat plant, (and indeed of whatever other crop that may be cultivated,) thereby rendering it peculiarly fitted to be afflicted by the midge, or any other species of blight, in the numerous catalogue of disasters which afflict our grain crops.

If the ravages of insects, rust, &c., should unfortunately prove too powerful

against the spirit of these, and similar suggestions, when *faithfully* applied, which we certainly do not believe would be generally the case, no other alternative seems to remain, *but the total abandonment of wheat growing for, at least, a few years.* This extreme expedient, to which farmers will always most reluctantly resort, was actually carried out some years since in the Lower Province, in the Eastern States, and more recently in some sections of the adjoining State of New York; and the ultimate results have unquestionably been beneficial. We are in a much better position now to forego,—if we should really come to that,—the raising of wheat, than we should have been only a few years since, when that article was almost the only one for which the farmer could readily obtain cash. It is not so now. Notwithstanding the serious loss and inconvenience which Canada would experience by being deprived of her usual wheat crop, for which hitherto our soil and climate have proved so highly favorable; still we must not despond, as the growing of wheat does not comprehend the whole of our agriculture. Spring grains, and especially the breeding, rearing and fattening of improved breeds of live stock, could be beneficially made to occupy a more prominent and profitable position, than has hitherto been the case; and in the course of a few years the soil would be refreshed for the growth of wheat, under new and more favorable circumstances.

But to this extreme alternative, we hope and believe that there is no necessity to go. A vigorous and systematic effort to avert the present threatening destruction of our hitherto staple crop, must be unitedly and immediately made. The evil is already in our midst, and is seriously imparing both the agricultural and commercial well being of the country. We earnestly entreat our farmers to confine their wheat culture to naturally suitable soils, and to increase that suitability by all the appliances of improved systems of husbandry they can command. Of wheat, and perhaps some other kinds of grain—for a while at least,—*cultivate less and cultivate better.* Land exhausted by too frequently recurring grain crops, when properly laid down to pasture, will become gradually enriched and restored by the grazing of cattle and sheep, which can now be made a profitable branch of husbandry. Hemp and flax, and probably some other crops, not yet tried, might be advantageously introduced. We earnestly invite communications from such of our readers, in different parts of the Province, as may have any information or suggestions to offer on this very important and engrossing subject. There never was a time in the history of our yet but incipient agriculture, when careful thought and observation, united with energetic and combined action, were more urgently required than at the present juncture.

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## THE DOMESTICATED ANIMALS.

### THE SHORT-HORNED BREED.

[*Continued from page* 6.]

In the briefest and most rapid sketch of the history of the Shorthorn cattle, a respectful mention ought to be made of the valuable services of Mr. George Coates, to whom we are indebted for the origination of the well known "*Herd Book,*" for recording the pedigrees of this widely renowned breed. Mr. Coates was the owner of a superior breed of Shorthorns, possessing great size and strong constitutions, but somewhat coarse, when compared with subsequent herds, more closely and finely bred. His bull *Patriot* was disposed of for four hundred guineas.

The great distinguishing characteristic of this breed of cattle is the astonish-

ing ripeness of condition at which they so early arrive, and the great weight of carcase, compared with the amount of food consumed. The quality of early maturity, as it is termed, distinguished more or less the old Teeswater breeds, before the Collings commenced those improvements, which have immortalised their names. More than seventy years ago Sir Henry Grey (of Howick) bred two oxen, which weighed, when six years old, 130 stones each, (14 lbs. to the stone), and a three year old heifer, belonging to another party, fed on hay and grass alone, reached 90 stone. Mr. Waistel's four years' old ox, by the bull supposed to be the grandsire of Hubback, weighed 110 stones. Mr. Charge's ox, seven years old, weighed 168 stones, 10 lb.; tallow, 13 stones. It would be easy to multiply instances of a similar kind, but the above are sufficient for our present purpose, and the reader can readily extend them by referring to Youatt, or any other trustworthy treatise on cattle.

The following have been selected from a subsequent period, when the breed had assumed more or less of the improved form and qualities, by which it is at present distinguished. Mr. Robert Colling's heifer, at four years old, was estimated to weigh 130 stones. Mr. Walton, in Teesdale, was in the habit of selling his steers at two years and a quarter old, at from £20 to £30 each; weighing from 50 to 54 stones, fed only on vegetable food. He found, by careful experiments, that his own cattle at two years old got fatter and weighed more than the ordinary improved breeds in the country did at three years. Mr. Rennie, of East Lothian, exhibited a steer at the Highland Society's Show in 1823, eighteen months old, which weighed 118 stones, of 8 lb. to the stone. These few instances, which may fairly be considered as a sort of average of a large number, clearly indicate the advancement which the breed continued to make.

"The Durham, or improved Teeswater breed, differs nearly as much from the older cattle of the Tees, as the Dishley breed of Long-horns from the older race from which it was derived. The height is less, but the trunk is more round and deep; the limbs are shorter in proportion to the depth of body, and the chest, back, and loin, more broad, so that with less apparent bulk of body, the weight is usually greater. The skin is light colored, and the hair reddish-brown or white, either separate or mixed. The muzzle is flesh-coloured, and rarely black, the appearance of which color on the skin indicates the revival of a character of the old varieties, which modern breeders study to exclude. The horns are shorter than in the former breed, light coloured, blunt, and sometimes laterally flattened. The skin is soft to the touch, the general form square and massive, the shoulders upright, and the hind-quarter large. The uprightness of the shoulder produces a hollowness behind, which does not exist in the same degree in the Devons, the Herefords, and other varieties allied to them. The uprightness of the shoulder is regarded as a defect, but it were more correct to say that is a character in harmony with the squareness of form distinctive of the breed. Although Colling preferred cattle of a medium size, yet the breed being derived from one of great bulk of body, there is a constant tendency to the production of large animals. The breed communicates its characters readily to all others, and the first progeny, even with races the most dissimilar, is usually fine. The females retain, in a considerable degree, the properties of the Holstein race, in yielding a large quantity of milk, in which respect they greatly excel the Long-horns, the Herefords and the Devons. In the property of yielding milk, however, the new breed is inferior to the older and less cultivated one, shewing that refinement in breeding, and the greater tendency to produce fat, are unfavorable to the secretion of milk. Individual cows, indeed, are found to retain the milking properties of the older race, but this is an exception to the common result. The oxen are eminently distinguished by the property of arriving at

early maturity of muscle and fatness. Great numbers are now disposed of at the age of about twenty-four months, in the highest perfection, and of a weight at which no other cattle in Europe arrive at the same age."—(Low.)

Persons not accustomed to look with a cultivated and critical eye on the various breeds of cattle, will often fail to discover some of the most characteristic points which the experienced breeder knows either to retain or avoid. A correct conception of the true types of any distinctive breed is therefore an acquisition of the greatest practical value. The above description of the modern Shorthorn, from Professor Low, is lucid and comprehensive; and to make this matter, if possible, still more plain, we are tempted to subjoin another description of the Durham type from another distinguished authority.

"When a pure bred Short-horn is looked upon at some little distance, one is struck with the roundness and mouldiness of the whole frame of the animal; there is nothing angular or rugged about it. On approaching nearer, he admires the beautiful, long, silky coat, and the full, prominent, yet mild eye. Unlike every other breed of cattle, they are, in fact, naturally tame and docile; instead of flying from man, or fiercely attacking any one who may go near them, they will remain quietly where they may be, in meadow or yard, waiting to be caressed or made of. It is very rare to see a savage animal among the Short-horned cattle; even the bulls are, generally speaking, uncommonly gentle. When examined by the hand, they feel soft and mellow; they all handle as if they were fat, even when in comparatively low condition; and, when they have been pampered to the highest pitch of obesity, they retain the beauty of form more than any other breed in a similar state, laying on fat equally all over the body, so that, in Yorkshire phrase, they are called "level beasts," that is, not humpy. They will keep in good condition on a wonderfully small quantity of food, provided they be dry; and thus, while other breeds were famishing on bare pastures during the summer of 1826, the Short-horns were in good order. But they are very impatient of wet, and dislike rough weather, so that shelter from rain and wind appears to be absolutely necessary for their prosperity, although cold does not appear to injure them." In point of early maturity, as before stated, they are unrivalled, and they command prices far beyond what was ever before given. The famous bull *Comet*, brought 1,000 guineas; Mr. Mason's *Chilton's Monarch*, 750 guineas; and that most distinguished modern breeder, the late Thos. Bates, Esq., Kirklevington, refused, it is said, the enormous sum of £2,000, for his bull, *Duke of Northumberland*, to go to America. As superior milkers, many of this breed are well known to the London dairymen, who call them Yorkshire cows, and prefer them to all others. Mr. Bates stated, in the "New Farmer's Journal," that, in June, 1857, his Duchess calved at Halton Castle, in Northumberland, and being fed on grass only, made, for several months, in milk and butter, above two guineas per week! The almost marvellous success, however, which has attended the exertions of many recent improvers, in effecting early maturity and fattening properties in this breed, has no doubt had the tendency of somewhat diminishing the mere dairy value of animals thus strikingly distinguished. This remark should nevertheless be taken with some qualification; for although the quality of milk generally afforded by the modern improved Short-horns is less than was the case with their coarser progenitors, the quality is unquestionably superior, yielding a comparatively greater weight of butter. This result might naturally have been anticipated, as the artificial change in the animal economy which induces an excessive secretion of flesh and fat in a short time, would be likely to produce similar effects on other secretions, particularly enriching the quality of the milk, and consequently the amount of butter. This probably will account, in some degree at least, for the numerous instances in which the most delicately improved Short-horns have produced milk which has proved particularly rich in butter.

The Short-horns which have now so long distinguished Yorkshire and other northern counties are chiefly indebted for most of their excellencies to a judicious system of crossing, especially with the improved breeds sustained in the beautiful valley of the Tees. It must not, however, be inferred that the old breed has been universally improved in a superior degree; there yet remain many differences, and some farmers, from prejudice, or otherwise, continue to prefer the common animals for dairy purposes to those more highly bred, whose chief characteristics are early maturity and strong fattening propensity. Mr. Youatt, in reference to this matter, observes: "Experience has gradually established the fact, that it is prudent to sacrifice a *small* portion of the milk to assist in feeding, when the cow is too old to continue in the dairy, or when, as in the neighborhood of large towns, her services as a dairy cow are dispensed with at an early age. This cross being judiciously managed, the diminution of milk is so small, and the tendency to fatten so great, that the opinion of Mr. Sale is correct,—'I have always found in my stock, that the best milkers, when dried for feeding, make the most fat in the least time.' This is a doctrine which will be better understood and universally acknowleged by and by, for many of the improvers of the Short-horns have but half done justice to their excellent stock. He would deserve well of his country who, with skill and means sufficient, would devote himself to the illustration of this point."

The same authority informs us that the Short-horn cow improves both in the quantity and quality of her milk as she grows older; that is, a cow of six years of age is superior, as a milker, to one of three or four years of age; and her milk will yield more butter in proportion. The milk of a single cow, on which the experiment was made, returned 373 lbs. of butter, in the space of thirty-two weeks; the lowest weekly amount being seven lbs., the highest sixteen. Her milk, during the time, averaged nearly twenty quarts per day; her food was grass and cut clover, until the turnip season; but the pasture was not of first rate quality. With abundant proofs of the value of the Short-horns as milkers, it is the breeder's interest not to neglect this point, which is compatible with every property he can desire.

It is not correct to consider the Durham breed as the only short-horned kind, but as a particular variety of a race, of which there have long been other varieties, particularly in the eastern districts of England. Of these, the more remarkable are the Holderness Cattle, the common Yorkshire to which reference has already been made. It may here be remarked that all our varities of cattle are but slight modifications of one type, even those which are, by breeders, esteemed most opposite to each other, not merely with respect to a gradation of horns, but also to points of more importance. Thus even one of the chiefs of the Long-horned breed—the celebrated bull, Shakspeare—is represented by Mr. Marshall as having "had every point of a Holderness or a Teeswater Bull. Could his horns have been changed, he would have passed in Yorkshire as an ordinary bull of either of those breeds." There is nothing very strange, therefore, in finding the Aberdeenshire and larger West Highland breeds, which possess many points in common with the Durham breed, crossing favorably with it.

Youatt's description of the appearance and character of a milch cow may be stated in substance as follows, and the reader will not fail to perceive that the Short-horns bear, in most important respects, a close resemblance to the description. A milch cow, good for the pail as long as she is wanted, and then quickly got into marketable condition, should have a long and rather small head; a large headed cow seldom fattens or yields much milk. The eye should be bright, yet with a peculiar placidness and quietness of expression; the chops thin and the horns small. The neck should be somewhat thin and gradu-

ally thicker as it approaches the shoulder. The dewlap should be small, and the breast wide and open, projecting before the legs; the chine moderately fleshy and full; the ribs should spread out wide, so as to give as globular a form as possible to the carcase, and each should project further than the preceding one to the very loins, giving, as much breadth as possible to the more valuable parts. She should be well formed across the hips and on the rump. The legs somewhat short, with thighs inclined to thinness and gentle curviture. The tail thick at the top, and tapering downwards, with a mellow hide and little coarse hair. The udder and milk veins should be comparatively large, and the skin of the udder should be thin and uniform. The teats should be of moderate size, located equally from each other.

The following lines which appeared in the *British Farmer's Magazine* some years ago, do not express amiss the principal points of a milch cow :—

"She's long in her face, she's fine in her horn,
She'll quickly get fat without cake or corn;
She's clear in her jaws, and full in her chine,
She's heavy in flank, and wide in her loin,
She's broad in the ribs, and long in her rump,
A straight and flat back, without ever a hump;
She's wide in her hips, and calm in her eyes,
She fine in her shoulders, and thin in her thighs.
She's light in her back, and small in her tail,
She's wide in her breast, and good at the pail;
She's fine in her bone, and silky of skin—
She's a grazier's without, and a butcher's within."

The generally received principles of breeding and fattening Short-horns, and their adaptation to the climate, pastures, and markets of this country, will form the subject of a future paper.

## DEATH OF PROFESSOR LOW.

We regret to learn from the last number of the *North British Agriculturist*, that David Low, Esq., late Professor of Agriculture in the University of Edinburgh, is no more. Three or four years since he resigned his chair in consequence of the declining state of his health, and was succeeded by John Wilson, Esq., who is personally known to many of our readers, and who, it will be recollected, visited Canada during our last Provincial Exhibition at Hamilton, and who has evinced, on more than one occasion, a desire to bring our productions under the favorable notice of the British public.

Mr. Low, it appears, was a native of Berwickshire, and his father was extensively engaged in the management of landed property, and enjoyed a high reputation. His son soon manifested a disposition to follow his father's pursuits, for which he afterwards showed the highest qualifications. He likewise took an active part in the management of his father's extensive farms in Berwickshire, which was the means of greatly improving his knowledge of practical agriculture, for which he was afterwards so distinguished.

In the year 1817 appeared Mr. Low's first work entitled, "Observations on the present state of Landed Property, and on the prosperity of the Landholder and Farmer." The termination of the war had greatly reduced prices, and great agricultural distress was consequently felt. The treatise was characterised by mature judgment and marked a sympathy with the position of the tenant farmer, and secured for the author an early and high reputation. In 1825, Mr. Low removed to Edinburgh, where he afterwards resided. In 1829 the *Quarterly*

*Journal of Agriculture* was commenced, mainly at his suggestion; a work that has been since published in connection with the Transactions of the Highland Society, which has done good service to the cause of British Agriculture generally, and to which Mr. Low was a regular and most valuable contributor. In 1831, he succeeded Mr. Coventry as Professor of Agriculture in the University; a post which he filled with distinguished honor and ability for near a quarter of a century.

In the Highland Society Mr. Low always took a warm interest, and rendered it most important services during the greater portion of his life. He was successful in establishing an agricultural museum in connection with the University, towards which he enlisted the aid of the Government and several private individuals; contributing not a little himself.

The writings of Professor Low were numerous. Besides the treatise already mentioned, and his numerous contributions to the *Journal of Agriculture, and the Transactions of the Highland Society*, he published in 1834, "*The Elements of Practical Agriculture*," a work of great and original merit, which has gone through several editions, and was soon translated both into French and German, and highly appreciated on the continent. His large and costly treatise on "*The Breeds of the Domesticated Animals of the British Islands*," in two large quarto volumes appeared in 1842. It was illustrated with colored portraits of the animals painted by Mr. Shiels for the museum, the portraits reduced by Nicholson; the price being necessarily high, 16 guineas. The French Government immediately ordered its translation. In 1845 appeared a fuller treatise on the Domestic Animals than was contained in the expensive illustrated edition, without plates, which is the best work on the subject in the English language. Another work soon followed "On Landed Property and the Economy of Estates," a work which enters very fully into the principles and practices of territorial management. The first edition of an "Inquiry into the nature of the Simple Bodies of Chemistry," came out in 1844, containing many ingenious speculations, which excited considerable curiosity and attention, so that a third edition appeared in 1856.

Professor Low died in the 73rd year of his age. His character was high toned and unsullied, his manners gentle and unassuming, and his loss will be long felt by a very large circle of admiring friends and readers of his works. "So long as the man of integrity and high principle is esteemed and venerated, so long will the memory of David Low remain a bright example in the performance of duties which require a combination of such qualities as sound judgment and high moral rectitude."

# Correspondence.

## SHORT RAMBLES IN KENT AND SUSSEX.

[The following extracts from the letters of a youthful correspondent, now in England, although not written with a view to publication, will, it is thought, not be entirely devoid of interest to several of the readers of this Journal.]

London, December, 1858.

Leaving the great, smokey, and bustling city of London, I will give you some account of a short journey, performed chiefly on foot, through some of the most interesting and picturesque nooks and corners of this delightful part of dear old England — I left our old village of Benenden on a beautiful September morning, and whilst passing through the churchyard, the old clock in deep and solemn tone announced from the

grey tower the hour of seven. Having determined to avoid as far as possible the beaten, dusty, highways, I soon betook myself to the green-winding lanes and field-paths which are so cool and delightful to the pedestrian traveller in England. A few miles of undulating country brought me to the now very small, but very ancient, village of Newenden, situated on the banks of the Rother, a small but tidal stream, which separates at this point the counties of Kent and Sussex. The valley of the Rother is mostly in permanent pasture, apparently of a very rich quality, well stocked with sheep and cattle It everywhere presents, with its enclosing highlands, diversified by woods, corn fields, and hop gardens, scenery that is characteristically Eng ish. Soon again turning into a quiet, green land, and leaving the picturesque village of Northiam a little to the right, I reached the main road at Bickley, and soon after passing through the somewhat scattered village of Peasmarsh, arrived at the ancient town and port of Rye.—During this walk of some dozen miles, over a finely undulating country, the most pleasing and lovely landscapes, diversified by hill and dale, and the various productions of an advanced husbandry, frequently enraptured the senses. The green hop gardens, whose branches were now laden with ripened fruit, and gracefully entwining each other from pole to pole; the yellow harvest fields which had just yielded most luxuriant crops; the woods and hedges beginning to display their rich autumnal tints; and above these stately trees, and often embosomed within them, pointing up towards the bright blue heaven, was the venerable spire of some old country church, now sending forth its melodious chimes, the sounds of which die away in the neighboring valleys, still somewhat obscured by the morning mist; these were scenes that could not fail to impart a soothing influence to the imagination and the heart. Frequently was to be heard the sound of the sportsman's gun; for the season of partridge shooting had just commenced, and the sport appeared to be keenly relished. In field-sports and open-air exercises and pastimes, England still abounds, and they contribute largely to the physical health and social well-being of the people. It was delightful to witness the neatness of the cottages, often literally covered with the grape vine, which, in favorable seasons, produces abundance of very palatable fruit, or with roses, honeysuckles, &c. There seems to be in these rural districts quite a passion for flowers among the cottagers, and their vegetable gardens are in general productive and neatly kept.

The grain harvest, which had proved abundant, was generally secured, and although this was by no means among the most favored grain producing districts, many good farmers grew from 30 to 40 bushels and upwards, of wheat per acre. For arable land, the fields in many places are too small, and the hedges too wide and high; though I understand that great improvements have of late years been effected, in grubbing and straightening fences, draining, and superior cultivation generally. Hops are the distinguishing crop, and their culture gives a decided expression to the whole district.—Most farms have from five to ten per cent of their whole area in hop-culture, which for the last few years has been anything but remunerating. There is a peculiarity about this crop which seems to be anomalous and objectionable, that is, a liberal, general yield is the least remunerating, and two or three heavy crops in succession are sure to entail upon the planters a positive loss. This arises in great measure from the fact, that hops are subjected to a fixed excise duty on the amount produced, irrespective of price. The duty is about two pence per lb., which frequently amounts in productive years to a third or fourth of the market value. In consequence of heavy growths for the last three or four years, the hops of this district are now selling for about 6d., or a little more, per lb., which, with the fixed duty and other expenses, is an unremunerating price. Some planters have averaged of late from 15 cwt. to a ton per acre (long weight). The cost of cultivation,—exclusive of duty, picking, and curing,—is stated to vary from £20 to £30 per acre; and many planters have sustained a dead loss this and the preceding year, of from £5 to £10 per acre! A moderate, general crop, which brings a higher price, is the only one, under a high fixed duty, that can be profitable to the planters at large. There is a strong and general feeling against the duty, and very energetic measures are now being employed to obtain its total repeal. Some, however, would prefer a reduction to a total repeal, being apprehensive that, if the latter were to be effected, the import duty on foreign hops would be removed also. Hop-growing is an uncertain and expensive business, sometimes affording high profits, at others a corresponding loss. Requiring garden culture, it employs large numbers of people, at wages generally above the average price of farm labor, and the gathering of the crop is one of the most agreeable and picturesque scenes afforded by agricultural pursuits in any country, and from which both the painter and poet have drawn some of their most effective materials.

Reaching at length the ancient town and port of Rye, I at once sought out its most interesting objects, and obtained all the information respecting them, which my very limited time would permit. The town itself is built upon a hill, the base of which was formerly washed by the sea, which has now receded at least three miles. Rye is a parliamentary borough, and a member of the Cinque Ports; it was once a place of considerable commercial importance, when such towns as Liverpool were mere fishing villages. It has a difficult and shallow harbor, and its trade is principally confined to Agricultural produce, coal, lime, timber, &c. Ships of small tonnage are built here, and considerable fishing is carried on. Rye is supposed by the learned to be the Novus Portus of Ptolemy, and its modern name is thought to be derived from the Saxon *Rhee* —a ford; the former position of the town favoring this opinion. In A. D. 893, the Danes, under the pirate Hastings, effected a landing near this town, and afterwards took Appledon, which was in those days a considerable place, about six miles distant, but now a mere village. On entering from the north, I passed under a magnificent old gateway, the only one of five now remaining; it is a handsome gothic arch, flanked on each side by a round tower. To the right may be seen a tower or castle in a good state of preservation, erected in the reign of Stephen, and afterwards strengthened as a means of defence. The parish church, dedicated to the Blessed Virgin, is a large and ancient edifice, having at the east end of the choir an elegant ornamental window, and a tastefully carved altar in solid mahogany. The sacred edifice, however, in common with too many old gothic churches, has been so patched and attired in the course of ages, as to materially mar its general expression and effect.

Rye, occupying an eminence, commands a great many picturesque and extensive views, pleasing alike to the artist and the agriculturist. Let me digress a little. Standing on the eastern slope of the hill, the view before me was extremely interesting,—the Rother, forming here the harbor, was gently meandering to the ocean at my feet, beyond which, to the east, is stretched out in one unbroken view the vast plain of Romney Marsh, literally dotted over by innumerable cattle and sheep; the latter looking like mere white points in the distance, contrasting beautifully with the bright green surface. The whole sweep of the English Channel, from Folkestone on the east, to Fairlight Down, behind Hastings, to the west, was distinctly visible, with a fleet of merchant ships sailing proudly on its bosom. The view from the western side of the eminence embraces the ancient town of Winchelsea, and in the distance Fairlight hill, with its holy edifice standing on its brow, a conspicuous object for some sixty or seventy miles around. Immediately below my feet commences the Bride Level, noted for its scenery and rich pasturage, treading several miles westward, between the gentle hills which form its northern and southern boundary, covered with wood, arable, hop, and pasture land, gradually sloping into the vale below, and calmly blending the whole—hill and dale—into one soft, wide-spread scene of perfect beauty. To an agricultural eye the whole appeared like a paradise. Stately mansions, and such farm-houses and cottages, occupied by an industrious, healthy, and united people, with, every few miles, the spire of a Christian temple embosomed in the shade of green trees and fields, directing man's grovelling thoughts from earth to heaven, form not only the most pleasing characteristics of an English landscape, but to their moral force we must chiefly look for an exposition of England's strength, freedom, and happiness.

Ascending to the northern and highest portion of Rye-hill, the view becomes still more commanding, forming in fact a complete panorama. On the south the blue waters of the English Channel are spread out before, with occasional glimpses, in clear weather, of the opposite coast of France. To the north and east the distant chalk hills of Kent bound the horizon, bringing into view a succession of ridges and valleys, resting on different geological formations, that present, I should think, a greater variety of soils and different systems of farming, within so limited an area, than are to be found in any other portion of this much diversified country, or, perhaps, in the whole world.—For instance, how different is the system of sheep farming between the chalk downs of Kent and Sussex, and the low alluvial lands of Romney Marsh! On the former, you see nothing but the fine short-woolled Southdown, fed chiefly on turnips in the field, by folding. In the latter, you find only the large, coarse, long-woolled Kentish sheep, which have to depend in great measure on the pasture of these rich lowlands during even the winter, as I find that no artificial food is given them except when the ground is covered with snow, a circumstance that only occurs occasionally for a short time.—These sheep are coarser and heavier than the improved Leicester, and not, I think, so handsome and symmetrical as the Cotswolds. They shear a heavy fleece of long sta-

pled wool, and in point of constitution, after long naturalization, are the best adapted of any breed to the exposed situation which they occupy. A considerable portion of this Marsh is below high water mark, and expensive embankments are kept up to prevent inundation of the sea. The drainage has of late years been greatly improved, so that the district is far more healthy, and the foot-rot and consumption, which were formerly so destructive to sheep, are now comparatively rare occurrences. The whole of this great tract was formerly covered by the tidal waters of the sea, and was consequently worthless. At present it rents for two to three pounds, and upwards, per acre; each acre of the better description will sustain from six to eight of those large sheep, in a fattening condition from May to December, and perhaps half that amount through the winter months. When the grass gets high and luxuriant the practice is to turn in cattle, to be succeeded by sheep, as it is not considered sound practice to allow both kinds to graze together. It is worthy of remark, that several places in this rich alluvial tract are still known by the names of their original reclaimers—several centuries ago: such as Becket's, Boniface's, and Baldwin's marshes,—ecclesiastics who owned and improved the property in connection with the ancient see of Canterbury. How vividly do the scenes in Old England's history flash into the mind, when one treads the very soil which was the theatre of their performance! After having visited the shrine of St. Thomas a Becket, in old Canterbury Cathedral, I could not but regard with a peculiar interest the portion of land which still bears his name in Romney Marsh. And notwithstanding the great changes that have taken place in the onward march of science, discovery, and civilization, every British agriculturist must acknowledge, that when learning fell into decay during the Middle Ages, agriculture, like classics, found an asylum in the religious houses, and its principles and practices were kept alive and in operation upon the estates of the Church. Despite the abuse which it has been too much the fashion in modern days to heap upon the memory of the monks, they were the best farmers and landlords of their times, and the conservators of agriculture, as they unquestionably were of classical and theological learning.

G. W. B.

(*To be continued.*)

## THE CULTURE OF HEMP IN PLACE OF WHEAT.

*To the Editor of the Agriculturist.*

Sir,—I beg to request that you will give the enclosed letter, headed "what shall we raise in place of wheat" an insertion in your paper. The question is one that I have frequently put to myself, and I have no doubt that many of our farmers have done the same, at least those who live in that part of Canada infested with the midge, or, as many mistakingly call it "the weevil." In 1857 my wheat was very much injured by the little pest, and last year so much so that I never attempted to thrash it, but fed out both winter and summer wheat to my stock in the sheaf, fully determined that I shall sow no more until the plague has passed over our neighbourhood; and if I can persuade my neighbours to do likewise, I think that we may soon get rid of it. The question then arises, "what shall we raise in place of wheat"? I, for one, am inclined to follow the advice of R. N. B. and try hemp, and I think that I have some fields suited to that crop; but I am, though a farmer all my life, entirely unacquainted with its cultivation, and therefore beg you will insert this with the accompanying letter signed R. N. B., a correspondent of the *Niagara Mail*, who is so good as to say, in concluding his letter, that if required he will give a description of the most approved method of raising, rotting, &c. If R N. B. will be so good as to say how the ground should be prepared, how sown, how much seed per acre, when sown, and how covered in the ground, what after cultivation is required, how to know when the crop is fit to gather, and how to gather it, what is to be done with it till rotted, and how it is to be prepared for market, I have no doubt that many farmers will be thankful to him, especially those who have not good or probably any books of reference, in their houses. I have many, but they have all been written in other countries, and may not exactly suit here. A very good article on the subject may be found in the "American Farmers' Encyclopædia," under Hemp, from the pen of Mr. Clay. As to a market, I think we need not fear yet, for very much hemp is consumed in the rope walks of Canada, all of which is grown either in the United States or in Russia, and the price must be pretty good or it would not find its way into our market.

About eight years ago two worthy young Scotchmen from Glasgow, came to Canada and established a rope walk on my farm. They have gone on steadily increasing their business and wordly goods, so that they are now comfortably off, give employment to many hands, and pay out a great deal of money in a year for foreign hemp. I never once heard of them having been offered a pound of Canadian hemp for sale, though the price was remarkably high during the war with Russia, when they were excluded from the markets of the world.

A few years ago Mr. Widder of the Canada Company, placed ten pounds at the disposal of Agricultural Association, to be given in premiums for Hemp and Flax, which sum has been liberally continued by that Company ever since, in addition to their twenty-five pound prize for wheat. To assist in the encouragement of the growth of hemp and flax, the Association offered other prizes, and a diploma with the first prize, which I was so fortunate as to win the first year, on flax. Cordage made from that flax has won the 1st, 2nd and 3rd prizes at the Provincial Fairs, and the cordage sent to France, from Canada, was made from the same crop. I now feel inclined to try for the prize and diploma on Hemp, and enter into friendly competition with the "Correspondent of the Niagara *Mail*."

Yours, &c.,

RICHARD L. DENISON.

Denison Terrace, Toronto.

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### WHAT SHALL WE RAISE IN PLACE OF WHEAT?

*From Correspondence of the Niagara Mail.*

The destruction of the wheat crop for the last two years has demonstrated to the farmers of this part of Canada, the necessity of looking for something else to take the place of this profitable cereal, something that will bear exportation and yield a remunerative return for our labor and expense. The cultivation of roots and vegetables, unless for fattening stock, will not answer, as the consumption of them must be local, and the demand limited. If every one raised large crops of potatoes, turnips, &c, for market, it would soon be glutted, and the prices fall below what it would cost to raise them. Besides this, there is a risk in keeping and great danger in transporting them during the winter season.

With a soil and climate well adapted for the cultivation of fruit, it would be well for us to devote a good portion of our best land for orchard purposes. An orchard well managed, is a good investment, and one that constantly increases in value every year, throughout the natural term of one's life, and is a fine legacy for posterity; yet years must elapse, from the time of planting, before we can hope for our reward, so that it will not answer for our present relief.

There are some farms that are admirably adapted for grazing purposes, such for instance as have a living stream running through them. These could be advantageously turned to the raising of sheep and mutton, and cattle for beef and dairy purposes. The products of which are largely imported into this province, particularly the Western portion of it.

The importation of animals in 1857 amounted to £114,007; of butter, £9974; of cheese, £38,066; and of green fruit, to £39,210; all of which in a country peculiarly agricultural as we are, should have been produced within ourselves. Even in the article of eggs alone, there were imported in 1857, £4664 worth, and of meats the enormous amount of £225,716 for one year alone. Here is a field open for the enterprise of our farmers, for with the exception of green fruit alone, all these articles can be produced in comparatively limited time. Many thousand pounds are sent away for other things that might as well be produced at home, as for instance in 1857, over £120,000 were paid for seeds and tallow, which we can as well produce as our neighbors over the river. The amounts mentioned above were all sent to the United States, and form but part of our importations. There are some farms not so well adapted for grazing, but which are rich and fertile, as most lands are in this country, where they have not been impoverished by bad cultivation. Upon these I think that hemp would be a profitable crop, as much so as wheat has ever been, and not subject to such fluctuations of prices. I do not think there would be any difficulty in finding a market for all that could be raised, as we now import largely of hemp and hempen articles, especially in the shape

of cordage, which can be easily manufactured as it requires no extensive machinery.—And I am sure that rope walks would be established wherever anything like a supply of hemp could be procured, and thus help to increase the amount of our manufactured articles, in which we are now so lamentably deficient. But apart from our own wants, England would furnish us a market for many years to come, as they import from Russia, and other countries hemp to the value of millions of dollars every year, which she would be very glad to send to her colonies instead of sending her money to a foreign and sometimes hostile power.

The amount of hemp grown on an acre, like anything else, depends a good deal on the cultivation, giving from 600 to 1000 lbs. per acre, and even more in a good crop. The price in Kentucky, where hemp is largely raised, is from five to eight dollars per cwt., when merely broken without being scutched. This, taking the medium of price and quantity raised, would give about fifty dollars per acre, and as a crop, it is said, can be raised on the same ground, year after year, with a slight manuring, without deteriorating the soil, the produce, takings all things into consideration would be as large as any crop we could raise.

The cultivation of hemp, where no fall wheat is sown, interferes very little with the other operations of the farm, for after it is sown it requires no further attention, until September, when most of the grain crops are secured; and if you are not at leisure when it is ready, it suffers no loss in value if left a week or ten days before pulling.

Having determined to try hemp myself, I would like to see others do so, and if you consider its cultivation to be a matter of interest to your readers, I will give you a description of the most approved method of raising, rotting, &c.

R. N. B.

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## SHEEP FARMING.

*To the Editor of the Agriculturist.*

Ryckman's Corners, Jan. 7, 1859.

Mr. Editor,—I submit to the readers of the *Canadian Agriculturist* whether or not it would not be profitable for a few years to change the practice of farming. The question will naturally be asked, In what way? Well, by preparing during the coming summer and fall, for buying up a much larger stock of sheep. Have you an hundred acres of cleared land? Then I would advise you to winter over next winter 150 ewes, and so continue for not less than three years. Sheep I find to be the most profitable stock I can raise, and I believe it is the experience of others. They are a kind of stock with which you can raise money at any time; they save, too, a great amount of labor compared with wheat-raising. Now, during these three years, your land of course must be chiefly in pasture and meadow, and let this be clover as much as possible; thus your land will be resting and recruiting, and the sheep will be bringing it into a fine condition for wheat in future years. During the three years, I think ten acres of wheat may be grown each year with great profit, and this is the method I recommend: Turn under clover after the 15th of June, plough 9 inches deep, and subsoil. Ploughing being done, now harrow; then pen your sheep on this field every night, in a pen just large enough for all to lie down in; move the pen twice or thrice a-week, until they have gone all over the field. Your fallow is now well manured. About the last of August put on your cultivator, and it will need no ploughing. When ready, drill your wheat,—furrowing out your land, making good water-courses where needed, and your prospect is as good as you can well make it for a crop of wheat. This will leave that field in a fine rich condition for a number of years to come.

Now, the question is, What is the best breed for our farmers to keep? Here there is and will be a difference of opinion—some preferring the pure Leicester, others the Southdown, others a cross between the two. The latter, I believe, is really larger and more easily fattened than the Leicester, and the wool is somewhat finer. The Southdown is an easily kept sheep, and yields a fine fleece, but the carcass is small. The manufacturer of wool greatly disapproves of the cross between the Leicester and Southdown, inasmuch as it does not improve the wool. The wool in this cross is harsh,—lacking oil. The best stock of sheep for Canada, is a cross between the French Merino

and pure Leicester. By this mixture you have a hardy sheep of good size, one easily fattened, and the very best quality of wool for the Canadian and for the American market. The Leicester sheep is quite defective in the amount of oil in its fleece, while the Merino has a superabundance, by which it is enabled to endure the cold storms of rain much better than the Leicester. From this cross you therefore obtain a long, fine, and soft wool, suitable for making up into Orleans cloth and goods of that class, while it is just the thing for good Canadian cloth.

Now, in order to have such a stock of sheep as the above, it is needful that some parties should continue to raise and import the two kinds in their purity—that is, the French Merino and the Leicester. A goodly number are to be found who have done good service to our country and honor to themselves, by importing and raising the pure Leicester sheep. A few persons have directed their attention to the French Merino sheep, and in getting them have spared no trouble or money. So thinks

STEPHEN KING.

## ALSIKE; OR, PERENNIAL HYBRID CLOVER.

*To the Editor of the Agriculturist.*

EDITORS,—Since addressing the public-spirited farmers of Canada, in the February No. of the *Agriculturist*, for 1858, on the "Alsike Clover," I wish, through the same medium, to make known my experience of it for another year, and as the results have been beyond the very sanguine expectations formerly expressed, no apology, I presume, is necessary for occupying a brief space in the columns of your excellent periodical, on a matter so important to the farming interest.

I stated having about four acres seeded down with the clover; it stood the winter admirably,—the land was a very rich clay loam, and, as the sequel will show, proved that the clover (as formerly hinted) is better adapted for a poorer description of soil than it occupied with me, especially if seed is (as it ought to be) an object with the Canadian grower.

The crop was altogether beyond anything of the kind ever seen by me; it was estimated by experienced judges at over 4 *tons per acre!* it was allowed to ripen fully, the consequence of which was a partial loss of the hay. On many parts of the field it was over six feet in length, the average certainly was over five feet, as those who noticed the sample exhibited at Toronto, had ocular proof, although the clover was lying, and the lower part of the stalk, to the extent of two feet, thereby much injured; yet there was left of excellent hay a full average crop, which my cattle at this writing are rejoicing over with all the pleasure they can express (lively looks and sleek coats), unaided, as in former years, by roots of any kind,—these being in this neighborhood, unfortunately, totally used up fattening grasshoppers for fall consumption! I have just finished dressing about 4 cwt. of seed of fine quality, taken from the hay, principally by shaking,—which I trust the various agricultural societies will enable me to distribute as widely as possible. I would suggest the propriety of the directors of these procuring some of the seed, to be given to the most enterprising of the members for trial, on condition of reporting the result. By this means only the clover can obtain a fair trial on the various soils, and under the varying temperature of this country; for my own part, I am thoroughly convinced it is the clover for Canada, and that this conviction will become universal, the rapid strides with which the "Alsike" is covering the face of the old country, and the laudatory terms in which it is spoken of by the intelligent farmers of Great Britain, are gratifying evidence.

PATRICK R. WRIGHT.

COBOURG, February 13, 1859.

WARTS ON HORSES.—The following recipe appeared in a recent number of "*The Field*," a weekly London newspaper devoting much space and attention to rural subjects, especially live stock. "One part of arsenious acid, in a state of fine powder, intimately mixed with four parts of lard, may be applied over and around the excrescences every other day. This will excite sloughing action, and in about a fortnight the warts will be thrown off."

# Agricultural Intelligence.

LAND DRAINAGE.—*We* extract from the *Colonist* newspaper, as bearing upon this important subject, part of a report of the Annual Meeting of the West Riding of York Agricultural Society, at Weston, in January last, as follows:

"H. J. Boulton, Esq., of Humberford, one of the Directors, in speaking to the Report, the purport of which he concurred in, said that he regretted he had not been able to attend meetings of the Directors lately, or he should have been glad to have suggested something for their consideration, to be embodied in their report. He had been lately in England, where he had made it his business to study the peculiar features of their agriculture and their climate, and note wherein they differed from ours. There was a general idea here that the English system of agriculture could not be carried out in this country, that our climate would not permit it; but he was convinced that this was an error, and the *sooner we disabused* ourselves of it the better. We possessed a great advantage over the English farmer in the ease and little expense with which noxious weeds could be got rid of by the aid of our hot summer sun, while in England they had to be laboriously gathered up by hand, and burnt. Another great advantage which we possessed was in our winter frosts, which pulverised and mellowed our soil a great deal better than all their clod-crushers and other expensive machines could do it in England. These peculiarities of our climate and others which he enumerated, he thought fully counterbalanced any advantages which the English farmer possessed over us in other respects. But though we possessed so fine a country, he would state that in all his travels through it (and he was well acquainted with it,) he had never yet seen a farm. Land there was in plenty, and cleared, but not a farm, or a farm steading. The fertility which the land possessed when first cleared was gone. It was not cultivated. The crops we raised were contemptible. In England, crops of 40 and 48 bushels of wheat, and 80 bushels of oats, were common; even 60 bushels of wheat per acre were frequently produced, and all the other crops were in similar proportion, while here we do not now get near half those quantities. This great difference arose from the superior system of farming in England. And this superiority was brought about by the energy with which English landed proprietors, capitalists of all shades of opinion, in fact people of all ranks, threw themselves into the question of Agricultural improvement. Noblemen of the highest rank took the lead in the matter, studied it, and experimented, not lavishly and wildly, but with economy and skill, and their operations were attended with success. Here you could scarcely get any one to pay attention to the subject, or listen to anything upon it. One of the objections most strongly urged against the possibility of the adoption of the English system of agriculture here, was, that the feeding of turnips to sheep upon the ground where they grew, which was the very basis of the agriculture of England, was impracticable here, owing to the severity of the climate. Now, to show how erroneous this idea was, he would state that the Swede turnips, which were the principal crop used for this purpose, were not fed upon the ground as they grew in England, without pulling, at all. It was only the Aberdeen yellow, the white, and the other less valuable kinds of turnips that were eaten off the ground in this way. The Swedes were always pulled, thrown into heaps, and afterwards cut and fed in troughs in the field. That this could be done in this country too, he knew from actual experiment, as he had fed sheep in this way the present season up to the present time. This it was which enabled them to farm so successfully in England, to raise such immense crops, and produce such quantities of meat for the butcher. But at the bottom of the whole system of agriculture in England lay the improvement of the land by thorough drainage. People in this country did not understand the subject, nor appreciate its importance. Mr. Boulton referred to the mode in which thorough draining by the use of tiles, was performed. In England there was an Act of Parliament by which the owner of any landed property, no matter how much encumbered, could obtain money from Government to drain it, paying six per cent per annum interest and sinking fund, which paid off the debt, principal and interest, in twenty years. And this debt formed the first charge upon the land, taking precedence of all other incumbrances. In this arrangement all parties interested concurred, because it was fully admitted that the improvemement of the land by drainage made it so much

more valuable that previous securities became so much the better by it, instead of being prejudiced. Under this act many millions of pounds had been expended in England, and the agriculture of that country thereby raised to the high state of perfection in which it at present is.

Mr. Boulton addressed the meeting at considerable length, the above being a very short abstract of his remarks, and was listened to throughout with much interest. He said he was carrying on operations himself to some extent, having purchased several thousand tiles, and he had men employed the whole of the present winter up to the present time, except one extremely cold day, in sinking drains on his farm. He concluded by saying that he was fully determined to urge the matter upon the attention of others, till he could impress its importance upon them, and get them to join in memorialising Parliament for an act similar to the English act.

Fine vs. Coarse-Wooled Sheep.—"Which is the most profitable breed of sheep, the fine-wool or the coarse-wool mutton breeds?" Taken literally, this query divides sheep into two classes—Merinoes and other sheep—and I have no hesitation in saying that the coarse-wooled sheep are the most profitable. If, however, the first half of the sentence be taken as a text, the question becomes much more difficult to answer in a country where the soil and climate are so various. No particular breed will suit all localities; and the kind that is most profitable in one place, will prove the reverse in another. Where the climate is mild, the range extensive, and mutton in little demand, of course the Merino must be the most profitable. Where the soil is rich, the pasture luxuriant, and proper shelter and winter food available, the Leicester breed and its grades will be found the most profitable. Where the soil is poor and hilly, the South-down breed and its grades will be the most profitable; and more particularly in localities where the quality of mutton is appreciated. In general, however, cross-bred sheep are the most profitable; and there is no better cross than that between the Leicester and Cheviot—combining a large quantity of good mutton with a heavy fleece of wool, besides being much hardier and better breeders than pure Leicesters. But, as far as my experience goes, the most profitable sheep are of no breed. Buy poor and inferior ewes, (of the native breed if possible,) cross them with the best Leicester or South-down rams, according to their roughness and other qualities, and they will pay from 50 to 100 per cent per annum or more. This is simply taking advantage of the established maxim in breeding, that the first cross is the best. You thus obtain an increase in mutton of from 20 to 30lbs., and an increase in wool of from 50 to 100 per cent., besides a great improvement in the quality of both. To sum up, in order to keep the most profitable kind of sheep every man must decide for himself, by comparing the qualities of the different breeds with the nature of the soil and climate, nearness to market, demand for wool, etc.—J. C. Orillia, C. W., Nov., 1858. —*Cor. Montreal Witness.*

Sheep and Wool.—It has long been the practice of farmers either to sell to the butcher or slaughter hundreds, yea thousands of sheep, during the fall and winter, because they thus avail themselves of some ready money, and also for the reason that they seem to have little confidence in raising sheep for their wool alone, as a paying business. By means of this wholesale slaughter, the stock of sheep throughout the whole country has been kept comparatively small, and wool growing, except at some intervals of unusual excitement, has been in a languishing condition.

In our opinion, no stock kept upon the farm, unless we except cows in the dairy districts, pays as well for the amount invested and the expense of keeping as a good flock of sheep. True, wool is often low and slow of sale, but at the low rates, with the increase of flock, there can be very little, if any, loss under unfavorable circumstances; and for a series of ten years they prove profitable, as any one may know who will take note and consult figures.

If we can succeed in inducing the farmers of Western Canada, in places where the midge and rust have nearly destroyed the wheat crop, to turn their attention to sheep, in part, we shall, according to our view of the subject, be instrumental in promoting their interests. One reason why farmers are averse to wool-growing is the difficulty of making satisfactory sales, as buyers are always ready to decry the article when the clip first comes to market, and quite as willing to hold it for a rise after they have succeeded in getting it into their hands. We do not now propose to offer any suggestions to remedy the difficulty, only to express the opinion that those farmers

who have good stocks of wool, can quite as well afford to hold it as those who often borrow the money to purchase for that object.

It is not our purpose now to discuss the relative value of course or fine wool sheep, or the superior qualities of any breed in either class. We are free to say, however, aside from the consideration of wool-growing, as a secondary object, that we think farmers near the cities and populous villages will find it profitable to raise sheep and lambs for the butcher.

Very few understand the proper method of raising mutton, as the great mass of sheep killed and sold at market are only in fit condition for wintering. Feeding is as essential to the production of "good mutton-chop," as to the furnishing of superior "sirloin steak," with the difference that sheep can be fattened, and well fattened too, at much less comparative cost than beeves. For fattening purposes, the large-bodied, course woolled sheep, as the South Downs, and their grades, with others of a similar character, are preferable.

We hope to induce farmers to an investigation of the subject, which they have ample time to do during the winter upon which we are just entering. More correct notions of the propriety and profit of sheep-raising and wool growing are needed—not for speculative purposes, but that those who would enter that field may do so with a better understanding of the subject. So also of fattening sheep. It is little understood, and practised less, except in a few instances. In summer they are easily kept in pastures, growing and fattening, to a certain extent, very cheaply. In the fall and during winter, they may be kept with good hay, turnips, barley corn meal, with the addition of a little oil-cake, occasionally, and be ready for market at any time during the latter part of winter or early spring. They should have good shelter from storm and cold, and access to clean water, and constant and regular feeding, to ensure success.—*Perth Courier.*

Curious Agricultural Notions.—M. D. Urcle, a French botanist, assumes that wheat is not an annual but biennial plant, and he has adopted a new method of cultivating it, so as to bring it to perfection according to his views. The ground for the reception of the seed is first well manured, either before winter or at the beginning of spring, to receive the seed between the 20th of April and the 10th of May, this time being chosen to prevent the chance of blossoming during the year. But the time of sowing may be advanced from year to year. Each grain is sown separately, allowing a large area of ground if the soil is rich, but diminishing according to its sterility. It is deposited in rows, in holes at regular distances, from nine and a half to twenty-three and a half inches asunder, in each direction, the holes in one row opposite the spaces in the next. Each hole is to contain four or five grains, two and a half inches asunder. When the plants have attained a height of four inches all but the finest one in each group are pulled up, and the single one is then left for the harvest of the succeeding year. This curious process is stated to increase the produce greatly but in our opinion it will not pay the expenses of its three years' cultivation, in comparison with annual cropping.

Agriculture in Ireland.—The land in cultivation, excluding rich permanent pastures, is 6,000,000 acres. The former prevalence of disease in potatoes has increased rather than decreased the breadth of the land under cultivation. The increase in potato culture is upwards of a quarter of a million of acres, and the value of one to two millions of pounds more. After allowing for the quantity and value, the corn crops covered 2,748,401 acres, and the green crops upwards of 3,000,000 acres, viz., 1,617,958 acres of roots, 91,555 of flax, and 1,424,572 of clover and meadow. The succession is grain, roots, grain and grasses, shewing a four years shift. The fact that the live stock of Ireland, which was worth £33,053,478 in 1855, is worth £34,276,175 in 1858, having increased to the extent of £1,222,697 in that period, is itself a proof that Irish agriculture is in a very satisfactory and improving state; but there is an incomparably stronger proof than that, in the wonderful improvement which has taken place in the condition of the Irish people during the last ten years. From being the most wretched people in Europe, they have become one of the happiest and most prosperous.

Use of the Potato.—This valuable and nutritious esculent is not only useful to us in the many tempting forms in which it is presented in its unmistakeable character, but the farina extracted from it is largely used for other culinary purposes. The

famed gravies, sauces, and soups of France are largely indebted for their excellence to that source, and its bread and pastry equally so; while a great deal of the so-cal'ed cognac imported into America from France is the product of the potato, and imbibed as the pure essence of the grape. The fair ladies of our country perfume themselves with the spirit of potato, under the designation of "eau de cologne." But there are other uses which this favorite esculent is turned to abroad. After extracting the farina, the pulp is manufactured into ornamental articles, picture frames, snuff-boxes, and several descriptions of toys, and the water that runs from it is a most excellent scourer. For perfectly cleaning woollens, and such like articles, and curing chilblains it is also successfully employed.—*Scientific American.*

# Miscellaneous.

## DUKE OF ARGYLE ON GEOLOGY.

One of the most pleasing and hopeful of the improved phases of British society, is the practice which has recently sprung up, of several of the most distinguished members of the upper ranks giving popular lectures on the most interesting subjects connected with literature, science and art, to the working classes. We seldom get a newspaper from the old country but what contains evidence of this pleasing fact. The nobility, clergy and gentry generally, appear to be quite alive, not only to the physical but to the yet higher wants of the masses; and they are in the most praiseworthy manner exerting themselves by personal example, to promote their moral, social and intellectual improvement. We remember when it was not so;—at least, not no generally and in so high a degree as happily prevails at present. In this unity of feeling among the different classes of society, may be found the secret of England's greatness and happiness. The last number of the *North British Agriculturist*, contains the following notice of a lecture delivered by His Grace the Duke of Argyle, on Geology, past and present, in the City Hall of Glasgow, under the auspices of the Athenaeum, Walter Buchanan, Esq., M. P., in the chair:—

"The Duke of Argyle was received with enthusiastic applause. He proceeded with a historical *resume* of the rise and progress of geological science. Theories of the origin of the earth had existed from the earliest times, and, in point of fact, formed the basis of nearly every mythology; but theory and speculation were not science. The Duke proceeded to consider the advance made by Buffon, whose great work was published in 1779, some five years after the publication of Goldsmith's. From Buffon to Hutton the transition was next made, the noble Duke elucidating with great clearness and force the great development which the labours of Dr. Hutton had given to the study of the stony science. The year 1799 marked a still further advance. In that year Mr. Smith, a land-surveyor, published the first geological map of English strata. After adverting to some remarkable limestone formations which he had recently met with in the Austrian and Bavarian Alps, the noble Duke referred to the recent discovery in the north of Scotland, that some rocks which the late Hugh Millar and others had always supposed were belonging to the old red sandstone, really belonged to the silurian rocks. Certain fossils had been discovered in these rocks which placed this fact beyond all doubt. Having disposed of the leading facts of interest in the general history of geological science, the Duke of Argyle gave an interesting account of the basaltic columns of Staffa, contrasting them with some still finer examples of the same formation in France, of which Professor Rogers had furnished a diagram. The noble lecturer then adverted to some of the religious difficulties and some of the moral reflections which the science of geology suggested, concluding as follows:—'I have no intention of entering upon the religious difficulties which the progress of geological discoveries has been supposed to raise. A large number of them have been overcome;

that is to say, they have been seen to be no real difficulties at all, but to have depended, as in the case of astronomy, on the erroneous principles of interpretation which had been applied to Scripture. Such difficulties as remain will, in all probability, receive the same solution; and thus the progress of truth in one department contributes to its progress in another, for surely no unimportant advantage is attained when new light is cast on the conditions under which the literal terms of Scripture narrative or parable are to be understood. It may be well, however, in closing this lecture, to say a few words on the general result of geological science as a whole, and the prevailing impressions which it leaves upon the mind. And, first, looking outwards, as it were, the first idea which it presents, almost with overpowering force, is *time*—illimitable lapse of time. Years cease to measure it; cycles of ages appear too small a unit with which to measure its duration. When we think of it we may repeat with some nearer approach to an understanding of their meaning, the words of David—"In thy sight a thousand years are as yesterday when it is passed, and as a watch in the night." (Applause.) The next idea which is brought forcibly before our mind is this—that, during that enormous lapse of time, a progressive series of events has been directed to a definite and forseen result. Here again old and familiar words seem to bear a new sense—to be deeper and truer than we ever knew before—"The sea is his and he made it; and his hands have PREPARED the dry land." What a long preparation that has been! How many worlds succeeding worlds have been required to produce our existing earth, with its varity of surface and of climate—its stores of coal, of lime and iron—the indispensable materials of human industry and wealth! And then, that wonderful history of animal life, in which we see it built up from low beginings, through the dreadful dragons and monsters of the middle ages of geology to the higher races which now minister to the wants of man! Of all this, no other word than the word "Prepare" gives the explanation or the meaning; for it must be always remembered that what are called natural laws are not really explanatory. They define the rules according to which certain effects are produced; but they do not explain to us either the how or the why. Yet these are the ultimate questions which the human mind is ever asking, and without an answer to which nothing can be fully understood; because it is in the answer of these questions that we can alone recognise the creating and directing will. Causes are not reasons; but the reason of a thing is its only real explanation to a reasoning mind; there is nothing intelligible except intelligence.—And now looking inwards at ourselves in the light of this science, the first idea that must strike us is that which is first by the mere force of contrast, the almost infinite smallness of our own term of life. 'Behold thou hast made our days as a handbreadth, and our age as nothing before Thee.' But then comes a contrast of another kind—a contrast between our littleness in one aspect and our greatness in another. Our desire to know, and our capacities of knowledge, how large and wide they are as compared with our power of finding out! We can discover, and we have discovered much—we seem to see what passed for ages before we were born, or our race began. But the deepest and highest truths which we long to know are inaccessible to our researches. At moments we may be beguiled with the hope that we are on the point of seeing something of the mysteries of creation; but they recede as we advance. The Creator eludes our search. What, then, is the last and prevailing impression left upon our mind by this general review of the results of science? What but this, the reasonableness of expecting that those truths which we have faculties impelling us to seek, but no faculties enabling us to discover, should be given us by direct revelation. Science leads us to a point where our interest is most excited, and then she drops our hand, intimating that she has reached her goal, and if we would go farther it must be under another guide. It is thus that the Sciences becomes the vestibule of the Church, and Knowledge the handmaid of Religion. The Duke concluded his lecture, which occupied fully one hour and a half in delivery amidst the cheers of the audience.

Sir A. Alison, in the name of the directors of the Athenæum, presented his Grace with a life membership ticket, and adverted to the eminent abilities and eminent public services of the Duke of Argyle.

His Grace having replied, the thanks of the meeting were formally voted to the Duke, and the audience dispersed.

THE ADULTERATION OF CONFECTIONERY.—The *Lancet* has published two important reports on the adulteration of sugar confectionery, a subject which has excited much interest in consequence of the recent poisonings at Bradford and the trial arising out

of them which took place at York on Tuesday week. The first report states that out of 50 samples submitted to analysis, 11 only were genuine, while not less than 34 were adulterated. The now notorious "Daff" was detected in 13 samples, together with, in most cases, large proportions of flour. The flour was found in as many as 33 samples, either separately or together with "Daff." The kinds of flour, or starch, generally employed, are potato and wheat flour, but Indian corn flour was present in several of the articles, and in one instance, sago powder. The extent of the adulteration varied from one-fourth, one-third, to nearly three-fourths. The confectionery analysed consisted of lozenges of various kinds (including ginger, cayenne, and peppermint) and Scotch mixture, several descriptions of comfits, conversation cards, and other articles. The ordinary adulteration of comfits is with wheat flour, which is not usually mixed equally with the sugar, but the carraway or other seeds are first coated thickly with wheat flour and sugar afterwards added. The effect of this proceeding is, that when put into the mouth, the sugar only comes into contact with the tongue; and hence these comfits have at first all the sweetness of genuine comfits.—This adulteration is easily discovered, either by simply breaking the comfits crossways, when the nucleus of wheat-flour may usually be readily distinguished from the outer sugar portion, or by placing them in water, when the sugar will be dissolved, but the wheat flour will remain, retaining nearly the original size and form of the comfits. In the second report the results of the analysis of the various colouring matters used to color these articles is given. Out of 44 articles examined, chromate of lead, or yellow pigment, was detected in 24 samples; Brunswick green, which contains chromate of lead, in seven samples; artificial ultra-marine in 10 samples; red lead in one; cinnabar, or bi-sulphuret of mercury in one; and arsenite of copper in one sample. In some instances two, and even three and four of these injurious or poisonous substances occurred in the same parcel of confectionery. The *Lancet* cautions the public against the use of the cheaper articles of confectionery, especially lozenges and comfits; also those made with liquors and essences, which are for the most part injurious; and, finally, all those, especially sugar-like ornaments, which are colored either yellow or green. The articles analysed were all purchased in the metropolis since the attention of the public was called to the subject by the catastrophe at Bradford.

## THE MANUFACTURE OF ASHES.

[The following article, copied from the *Montreal Witness*, contains information that must be more or less useful to such of our readers as are settled upon timbered lands, where, in the process of clearing, the manufacture of potash can be often profitably carried on:]

No apology is necessary for devoting special attention to the manufacture of an article so important to the Agriculture and Commerce of Canada, as Ashes. We have therefore procured from the best sources the following information, which is designed as will be perceived not for experienced manufacturers, but for merchants and settlers in the regions of Canada, which have been recently opened up, and in which land-clearing is extensively carried on.

In the manufacture of Ashes by new settlers, board leaches are the easiest made, and cheapest, and upon the whole the best. They should be, say about eight feet long, and the boards of which they are composed four to five feet long, meeting at the bottom and diverging to a width of four to five feet at the top. A pole about 2 inches in diameter should be placed at the bottom of the leach inside, and upon that some clean straw. Then a layer of clean well-slacked lime,—say three bushels to the leach,—should be spread equally along, and trod down hard. Then fill up with Ashes the best and cleanest at the bottom, treading or beating down each layer well. Such a leach will hold 70 to 80 bushels, and if the Ashes be good, two of these leaches will make a barrel of potash. The ley runs from the leach into a trough extending all its length, and from thence into a large trough capable of holding a dozen pailsful; from this last the ley is dipped into the feeder which supplies the potash kettle. If the Ashes have been gathered from low lands, and are consequently mixed with muck and earth, an extra feeder should be employed, with a bushel or two of lime in the bottom,

through which the ley should be filtered a second time before going into the ordinary feeder. It requires great care to make good Ashes from mucky land, and unless the Ashes be very clean the same lime should not be used to make over five barrels, if the maker wishes to secure first sorts.

Ashes from timber newly cut in the fall are much stronger than at any other time. Indeed, after wood has been some time cut, and becomes dry and decaying, the ashes are of little value. The strongest Ashes come from soft or swamp elm, black ash, and maple. There is a proportion of nitre in the ley which runs from Ashes, which becomes much stronger in the last run of the leaches, and renders the ley weak. The potash made from such ley is smooth and glassy, and not strong. Strong potash should have as coarse a grain as sugar. The application of water to the leaches should be gradual, the quantity being regulated by the dryness of the Ashes.

To manufacture Ashes well is a nice process, and when the maker lacks practical knowledge, an experienced assistant should, by all means, be secured.

The following is a repetition of our circular on this subject last year, to which we have nothing to add, except that the weight of barrels should never be less than one-eighth of the gross weight, or they will not bring the highest price. If the gross weight be 5 cwt. or 560 lbs., the tare or weight of cask should be 80, and as a general rule, 80 is as near as can be guessed.

The usual cases of inferiority in Ashes are, in the first place, dirty leys,—the leaching process not being sufficiently perfect, and the raw material in many cases being field ashes mixed with a large proportion of dirt.

The next cause is adulterating the ashes with lime, salt, sand, &c. Salt should in no case be used, and lime only, in the leaches. On no account should stones, wood, raw ashes, lime, straw, or dirt, be put in to fill up a barrel.

The next cause is using weak leys. The last run of the leaches, when not able to float an egg or a potato, should never be boiled, but kept to wet the next leaches.

Another cause is bad barrels. Whisky barrels, or green and unseasoned casks, the wood of which contains moisture of any kind, will cause the ashes to deteriorate rapidly. White Oak and White Ash casks are much preferable, and Red Oak should never be used where it can be avoided—being all well seasoned.

Ashes should be emptied by coolers into the barrel, two coolers being just sufficient to fill one barrel, and there should be as little breaking of Pot Ashes as possible, as the more they are broken the more rapidly do they deteriorate by the action of the air. Ashes should never on any occasion be packed hot into the barrels.

If the ashes have begun to melt before packing, the cakes may be rubbed with dry slacked lime to prevent further melting, but lime or raw ashes should never be thrown loosely over them, as this injures the appearance, and must be separated in inspection.

Barrels must weigh at least 75 lbs. when thoroughly seasoned, and they should be accurately weighed, and that weight legibly marked on the barrel before packing — They should be packed quite full, and should be covered with solid round hoops to the extent of two-thirds of the barrel. The dimensions of the barrels used should be 20 to 22 inches diameter of head, and 30 to 32 length of stave, larger or smaller being condemned by law. The mark should be quite legible, and only one plain mark and number should be on each; as when there are two or three marks, there is more liability to confusion. The mark should be the maker's or owner's initials, as when the initials of a consignee are used, several lots may get mixed.

After packing, the barrels should be well coopered, with three shingle nails in the end hoops of each, to prevent the heads from falling out, and put in a dry place where they will not be exposed to moisture.

The grades by law established are, first, second, and third sorts, and then unbrandable Nos. 1, 2, 3, 4, and 5, each grade being an additional eighth off the selling price of Firsts. Thus, unbrandable No. 4 has seven-eighths of the price of Firsts deducted, and No. 5 would sell for just nothing.

Firsts Ashes should contain 75 per cent of pure alkali, at least.

The information in the preceding article is derived partly from experienced manufacturers, but chiefly from the Ashes Inspectors, whose willingness to do all in their power to aid and encourage the manufacture of Ashes, is deserving of praise. Nothing is said here of the manufacture of Pearl Ashes, which can only be undertaken by a person of capital having the necessary buildings and apparatus, and who would, of course, procure experienced assistance.

JOHN DOUGALL,
COMMISSION MERCHANT.

## THE FIRST PRINTED BOOK.

BY W. H. DAVENPORT ADAMS.

[ The *first printed book*, it is said, was produced by Faust and Schœffer, at Mentz, August 14, 1457.]

With musing brow and thoughtful eye,
The printers sit in their secret room—
And the marvellous letters about them lie,
And the mystic press stands apart in the gloom;
Before them spreads each dainty line
Of the Book just borne from their subtle thought:
Arise, O moon! let thy lustre shine
On the wondrous work their brains have wrought!

*O World take heed! we sow the seed—*
*O World, beware when the millions read!*

Shine out, O moon! on the printed book—
The first-begotten from yonder press—
Into the dusky chamber look,
And gild with thy glow the great success!
Light up the pale wan brow, and fire
The sunken eye—light up the soul
Of the printer! ay, his brain inspire
With the victor's joy who wins the goal!

*O World, take heed! we sow the seed—*
*O World, beware when the millions read!*

Brother! O brother! my heart is alight
With burning thoughts! O happy man!
The cloud, and the storm, and the shadowy night
Shall surely vanish. Ha! ha! we plan
A noble work for the coming Time,
To carry the torch from hand to hand:
Methinks the bells of the Future chime
Triumphal music in every land!

*O World, take heed! we sow the seed—*
*O World, beware when the millions read!*

No more shall Wisdom meanly lurk
In the scholar's cell—nor the poet's strain,
Nor sage's thought in secret work—
Brain shall responsive speak to brain!
The humblest hind in the lowliest cot,
Shall bless the page where genius gleams
With a light and a glory unforgot,
And lap his soul in the bravest dreams!

*We sow the seed, but, World, take heed—*
*O World, beware when the millions read!*

O God! may our Work be never abas'd
To speed afar the prolific lie;
For with noble, tender fancies grac'd,
And generous thoughts, 'twill never die!
Let Truth live sparkling in every line—
Let Virtue brighten o'er each page;
Then shall the Press be a Thing Divine—
The priest and prophet of every Age!

*O World, take heed! we sow the seed—*
*O World, beware when the millions read!*

'Twill bless with a thousand joys the world;
For when the flag of the Free's unfurl'd,
And when the strong are cow'd by the weak,
When Genius dares its crown to seek,
When Poverty gains a helping hand,
When Angels in the silence stand,
And Truth, and Faith, and Hope have birth
Spontaneous over the happy Earth,
All men—all times—shall heartily bless
The Work achieved by the Printing Press!

*O World, take heed! we sow the seed—*
*O World beware when the millions read!*

THE VARIETIES OF NATURE.—There is more variety of pattern—in most cases of very elegant pattern—in the sliced fragments of the teeth of the icthyolites of a single formation, than in the carved blocks of an extensive calico-print yard. Each species has its own distinct pattern, as if in all the individuals of which it consisted, the same block had been employed to stamp it; each genus has its own general type of pattern, as if the same inventive idea, variously altered and modified, had been wrought upon in all. In the genus Dendrodus, for instance, it is the generic type, that from a central nave there should radiate, spoke-like, a number of leafy branches; but in the several species, the branches, if I may so express myself, belong to different shrubs, and present dissimilar outlines. There are no repetitions of earlier patterns to be found among the generically different icthyolites of other formations. We see in the world of fashion old modes of ornament continually reviving. The range of invention seems limited; and we find it revolving, in consequence, in an irregular, ever-returning cycle. But infinite resource did not need to travel in a circle, and so we find no return or doublings in its course. It has appeared to me, that an argument against the transmutation of species, were any such needed, might be founded on those inherent peculiarities of structure that are ascertained thus to pervade the entire texture of the framework of animals.—*The Cruise of the Betsy, by Hugh Miller.*

CIGARS.—The finest tobacco in the world comes from the Havanna. But there is only a limited area in Cuba in which that tobacco is produced; so that whilst the Havanna tobacco may be of excellent quality generally, the best is the produce of a small area, and is chiefly used in the island or as presents, a very limited amount going into general consumption. Tobacco, scarcely inferior to that from Havanna, has, however, been brought from Trinidad, and the southern Russian Provinces. Manufacture, on the other hand, exercises a great influence over the quality of tobacco. In Algiers, where the climate is most favourable, the cigars are not smokeable, because they are badly prepared.—Again, some English-made cigars are of much greater excellence than many of the cigars imported from Havanna, and paying the highest duty as manufactured tobacco; and there is no doubt whatever that it is quite practicable to make cigars in this country which shall be undistinguishable in appearance and not very distinguishable in flavour from any except those first class Havannah cigars, which scarcely ever come into consumption.—*Timb's Things not generally Known.*

THE TURKISH BATH.—As there has been much talk lately about Turkish Baths, and whether it is possible or desirable to bring them into common use in this country, and as we know that there are most erroneous notions prevalent with respect to their cost and comfort, a short account of a visit to one recently constructed at South Preston Cottage, North Shields, may possess some public interest. On a fine, clear, cold, rather frosty night, just as the moon was rising above the trees, robed in the bath dress, a loose flowing cape reaching to the knees, we were conducted by our host from the vinery (with its sashes open) into the outer bath apartment, where, seated upon low stools, with the thermometer at 85 degrees, we were soon in a genial glow. Thus prepared, we entered the inner apartment (leaving the loose gown—wearing small aprons), the atmosphere at 125 degrees. Seating ourselves, *a la* Turk, on a low wooden bench, we waited in profound silence the moment when all our skin impurities should "melt, thaw, and resolve themselves into a dew." Nor had we long to wait. Soon a most copious shower of perspiration ran from every pore. Our attendant commenced a brisk friction with hands and feet over the whole surface of the

body, and produced a result that we confess we were not prepared for. Accustomed to daily use of the ordinary warm and cold baths, and the constant use of "flesh gloves," we fancied that we had left little to be removed; but, under the skilful hands of our manipulator, we were soon divested of a rough coat of dead epidermis, that must have been a terrible obstacle to the delicate process of respiration, which nature intends to go on constantly over the whole surface of the body. Next we were rubbed from head to foot with soap, followed by a delicate stream of warm water poured over us, which produced a delightful glow of invigoration such as we have rarely experienced before. A sense of purity over the whole body, and a deep calm as of settled peace, fell upon us with all the freshness of a new birth. Next a bracing stream of cold water, and we stepped again into the first apartment. When the body had been rubbed perfectly dry we were conducted into the vinery, where, reclining on a couch, every muscle in repose, we were exposed to a current of cold air, with the loins only girded. Yet, as we imbibed a fragrant cup of coffee, there was no feeling of chill, but one of perfect health and renewed energy vibrated through the body, while through the mind, sympathising as ever with her earthly dwelling, passed rapid visions of all that was pleasant in the past or hopeful in the future; and we left the dwelling of our friend convinced that few blessings of modern civilisation, as auxiliaries to health and comfort, are to be compared to this English version of the Turkish bath. —*The Builder.*

Statistics of London Bridge.—In ten years the number of persons passing through London Bridge Station has increased from 624,000 to 13,500,000! and of these nine-tenths cross over the bridge, being about 30,000 on foot, 10,000 in cabs, and the remainder in omnibuses. Of this multitude of railway travellers, who cross the bridge, whether on foot or in some vehicle, a large proportion are destined for parts west of Holborn and Temple Bar; and hence to reach their destinations have to pass through the city in cabs, carriages, or omnibuses, the lower classes chiefly making their way westward by the river steamers. Some idea of the degree to which the thoroughfares are crowded by this incessant flow of traffic westward may be formed from the one fact that upwards of two thousand omnibus journeys are daily performed between London bridge station and places west of Temple Bar, all of which must of course pass through the city by the Poultry and Cheapside. Of the number of carts, waggons, and other heavy vehicles we have no exact return; but if it correspond in any fair proportion to the other means of locomotion it must rise to an almost fabulous height. No other similar structure in the world endures such a daily and nightly burden of toiling, incessant traffic. Twenty-three years ago, when the bridge was first built, at an expense of a million and a half sterling, it more nearly sufficed for the wants of the busy millions who dwelt along the Thames; but now, since London has doubled its former population, and every year still adds to her teeming myriads, the accommodation seems but a narrow and scanty one. In spite of all that clever and active police can do—in spite of all city laws, rules, and regulations, the traffic on the bridge itself, and for a long way on either side of it, it is too often slow and densely crowded, or comes almost to a dead stop. From the Flower Pot in Bishopsgate Street to the Town Hall in Southwark the mighty chain too often extends in one unbroken line, and the single stoppage of a cart in Chick Lane, or some other trumpery affluent of a main thoroughfare, may cause a thousand charioteers to waste in impatient delay some precious half-hour, the loss of which will upset all their business plans for the day. This evil is not only great, but is actually increasing.—*Morning Herald.*

Vermin Riddance.—It is stated in *Hall's Medical Journal*, that half an ounce of soap boiled in a pint of water, and put on with a brush while boiling hot, infallibly destroys the bugs and their eggs. Flies are driven out of a room by hanging up a bunch of the plaintain or fleawort plant after it has been dipped in milk. Rats and mice speedily disappear by mixing equal quantities of strong cheen and powdered squills. They devour this mixture with greediness, while it is innoxuous to man. When it is remembered how many farmers have lost their lives by swallowing in mistake mixtures of strychnine, ratsbane, corrosive sublimate, &c., which are commonly employed for this purpose, it becomes a matter of humanity to publish these items.

THE

# Canadian Agriculturist,

AND

## JOURNAL OF THE BOARD OF AGRICULTURE

OF UPPER CANADA.

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## SPRING WORK.

The advent of the busiest season of the agricultural year is near at hand, and present appearances clearly indicate an early spring. Frost in warm and dry situations is nearly or quite out, and in a few days, as the ground gets consolidated, the plough may be put into requisition. Such has been the peculiarity of the past winter, that, in some parts of the Province, ploughing need not have been suspended more than a few weeks.

The farmer will now be busy in preparing his seed-bed for spring sowing, and where land is naturally dry, or rendered so by artificial means, his labors this season promise to be more than ordinarily light and pleasant. The final result of the crops will very much depend upon starting well. The mechanical, as well as the chemical, condition of the soil, is of vital importance; hence, the necessity of draining where the land is wet, of deep and clean cultivation, and of a sufficiently fine tilth, in which the seed can freely germinate, and the young plant rapidly grow and mature.

Farmers will do well at this season of the year to examine closely their wheat fields. Where land has not a pretty even surface, and is more or less wet,—conditions necessarily common in new countries,—much may often be done by a little extra attention and labor at this season of the year. A man with a spade may sometimes, in a few hours, very much relieve hollow, wet places, of the water they contain, by making a shallow open drain to connect with the nearest furrow; and the furrows themselves may often be made more perfect as drains, by deepening them here and there a few inches, thereby greatly relieving low and wet places of the stagnant water which often injures the young wheat for many rods around. Much might be done to protect the wheat from rust and other casualties, by paying more attention to the efficient ridging and farming of land in the fall, and scouring out, where needed, these water-courses in the spring.

With regard to the time of sowing, it may be safely assumed as a good general rule, to perform this operation as soon as the soil is sufficiently warm and

dry. Land should never be cultivated, and, if possible, much less sown, in a cold, wet state. In such conditions, much of the seed is likely to perish in the act of germination, and what plants survive can seldom come to a healthful maturity. It is unwise, therefore, to adopt a precise and rigid rule for the time of sowing; an operation that must be varied to suit the differences of soils and seasons.

Preparations for sowing spring wheat must be proceeded with, and the land brought into a clean, friable state, as much of the success attending wheat culture depends upon the manner in which these preliminary operations are performed. There can be no doubt that many of the disasters to which this crop has of late years been so peculiarly liable, arise from, or at least are greatly increased by, the slovenly and imperfect way in which the soil is prepared.—Want of drainage and manure, and the too frequent recurrence of the same crop, with imperfect tillage, and want of care in selecting, cleaning, and changing seed, are unquestionably the chief causes of the failure of wheat, now so extensively and disastrously experienced. In changing seed it is of importance to take from an inferior soil and climate to a superior—from sand to a limestone, and from the shallower soils of the latter to the better classes of the former. In the Western States, grain grown on the sandy plains, or "oak openings," answers admirably, as a general thing, when sown on rich limestone prairie soils, which often constitute extensive areas.

It would no doubt be highly advantageous to procure a much greater change of seed-wheat than is commonly done. The "Black Sea" variety has been for some time deteriorating, and the same remark applies to the "Club," which deservedly obtained a high celebrity; but the "Fife" seems now to be the favorite in Canada, and last year, from the fall returns obtained by the Bureau of Agriculture, this variety generally escaped the rust, which was extensively destructive of other sorts.

The preceding remarks will more or less apply to oats and barley, both of which might be materially improved by proper attention to their culture, in quantity and quality. The latter should not be sown till all risks of severe night frosts are at an end; as young barley is particularly tender, and when once injured in the early stages of its growth, never wholly recovers.

The summers of Upper Canada are generally too dry for maturing heavy oats, although we have now and then seen very fine specimens grown on deep, humid soils, in a season more than usually moist and cloudy. With regard to heat and drought, wheat and oats have what may almost be termed opposite habits.—Hence the peculiar adaptation of the climate of this portion of the American continent to the production of the former, while the more humid Eastern Provinces on the sea-board yield in a superior degree the latter. The "Tartarian Oat"—either black or white—seems to be the best adapted to this section of Canada, particularly when *quantity* is considered. In quality, however, the grains are generally inferior to some other sorts.

As soon as the frost is out and the ground dry and consolidated, every effort should be made to prepare the land intended for potatoes, turnips, and other root-crops, in the most perfect manner. When farmyard manure is applied broadcast, it should be divided and mixed up with the soil as thoroughly as possible, and no pains or expense spared to obtain a deep and fine tilth, upon which, and the subsequent cultivation with the horse-hoes, these crops essentially depend.

## SEASONED WOOD FOR FUEL.

In some way or other the notion has got abroad that it is more economical to burn green than seasoned wood. The reason for the practice is said to be to make the fire burn longer, and accordingly it is not an unfrequent thing to see people mix green wood with dry, with a view of making the materials "go further." That green or wet wood, which are precisely the same thing, is more difficult to kindle, and will continue longer in the fire than when dried and well-seasoned, is patent to every one, and it must surely be equally apparent, that such fires afford but little heat compared with the time and amount of fuel consumed, and are most difficult and tedious in their operations, most sadly taxing the temper and patience of females to whose lot the management of these matters generally falls.

The preference shown for green wood, however, is generally found in the country where wood is plentiful and cheap and burnt in large quantities in open fire places. In towns where fuel is dear and has always to be bought, it is rare to see green wood used when dry and seasoned can be got. Most people thus situated cut and split their wood under cover, instead of exposing it as is commonly the case in country situations to all the changes of the weather. Parties connected with steam-boats, railroads, factories, &c., where large quantities of fuel are used, and profit and economy systematically studied and calculated, dry seasoned wood is invariably preferred; showing thereby that the common notion in this matter in our farm houses is a popular fallacy.

Let us, however, go a little into the philosophy, if we may use such a term, of the matter. What is the object of kindling a fire but to eliminate *heat?* Now, if is found that combustible bodies will not readily burn when saturated with moisture, which has first to be evaporated before combustion fairly acts. Green wood has a large amount of water (sap) which has to be driven off into vapour before the material will readily burn, and in this process of evaporation a large amount of heat becomes latent—that is concealed—or, in other words, does not raise the temperature of surrounding bodies, such as the air, &c. Newly cut wood will, according to the variety used, contain from 20 to 50 per cent of water. Trees contain more sap during the season of growth than in winter, and soft woods more than hard. Wood kept dry and exposed to the action of the air for a year, will in general part with something more than half of its moisture, particularly if it be split or divided. More of its moisture may be expelled by subjecting it to artificial heat, and before it parts with the whole of its moisture it will begin to decompose or char. Thus we see that green or wet wood is tedious and uneconomical in using, as it hinders and delays the combustive process, and wastes heat by evaporation. Suppose that 100 pounds of wood contain 20 of water, they have then but 70 of true combustive material. When burned one pound of the wood will be expended in raising the temperature of the water to the boiling point, and six more in converting it into vapor; making a loss of seven pounds of real wood, or one tenth of the combustive force. Besides this dead loss of 10 per cent of fuel, the water present is an annoyance by hindering free and rapid combustion."

Different species of wood, it is well known, possess different degrees of density or specific gravity, and they vary as much in their relative quantities of natural moisture or sap. Wood is generally sold by measure, but equal measures or bulks yield very unequal amounts of heat. Mr. Bull, some time ago, made a number of carefully conducted experiments to determine the relative heating values of the following American woods, taking Shell Hickery as the standard represented by 100:—

| | | | |
|---|---|---|---|
| Shell bark Hickory | 100 | Yellow Oak | 60 |
| Pig nut Hickory | 95 | Hard Maple | 60 |
| White Oak | 81 | White Elm | 58 |
| White Ash | 77 | Red Cedar | 56 |
| Dogwood | 75 | Wild Cherry | 55 |
| Scrub Oak | 73 | Yellow Pine | 54 |
| Witch Hazel | 72 | Soft Maple | 54 |
| Apple tree | 70 | Chestnut | 52 |
| Red Oak | 69 | Yellow Poplar | 52 |
| White Beech | 65 | Butternut | 51 |
| Black Walnut | 65 | White Birch | 48 |
| Black Birch | 63 | White Pine | 42 |

The same species of wood will vary in density and amount of moisture, and consequently heat giving power, according to its various stages of growth, and the nature of the soil, climate and kind of exposure to which it is subjected. Trees grown in low, damp and sheltered situations will generally be found less dense, and their foliage and branches less tightly put together, than such as grow in open fields and in high and dry situations.

In the ordinary way of burning wood, either in stoves or in open fire places, there are two stages: In the first, heat comes chiefly from the flame; in the second, from red hot coals. Soft woods are more active in the first condition, and hard woods in the second. Soft woods produce much flame in a state of combustion, but have little coal, while their conditions are usually reversed in cases of hard wood. The cause of this partly arises from soft woods being more porous and more readily filled with atmospheric air, the oxygen of which supports combustion more rapidly. But, perhaps, the chief cause arises out of their differences in chemical composition. "Pure woody fibre, or lignin, from all kinds of wood, has exactly the same composition; a compound atom of it containing 12 atoms of carbon, 10 of hydrogen, and 10 of oxygen,—or, there is just enough oxygen in it to combine with all its hydrogen, and change it to water in burning. But in ordinary wood the fibre is impure; that is, connected with other substances which particularly alter its composition. The hard woods are nearest in composition to pure lignin, but the softer woods contain an excess of hydrogen. For this reason, they burn with more vehemence at first; more carbon is taken up by the hydrogen, in producing flame and smoke, and the residue of coal is diminished. The common opinion that soft wood yields less heat than hard (*equal weights*) is an error; it burns quicker, but it gives out an intenser heat in less time, and is consequently better adapted to those uses where a rapid and concentrated heating effect is required."

The price of wood for fuel has of late years greatly advanced in Canada, and although at present that article partakes of the depression common to other things, it is pretty certain for the future that fuel will command a high price in all the older settled portions of the Province. Hence the necessity of preserving the productive portions of the native forest, by the encouragement of second growth trees, and of economizing fuel, by the use of improved stores and the keeping of firewood dry, and only using it when it is properly seasoned. The expense of erecting a capacious wood shed is but a trifle compared with the loss that is sustained by the present too prevalent practice, in most parts of the country, of allowing firewood to rot without any kind of protection. When cut and piled out of doors, with a slight covering on the top, wood may be generally preserved, and will amply repay the little extra trouble and expense. In all yards and premises where these common sense precautions are not heeded, and where wood is allowed to lie about without order or protection, an untidy and disagreeable appearance is witnessed, and much loss and inconvenience are experienced in this important item of domestic cost and management.

## THE PUBLIC GRANT TO AGRICULTURAL SOCIETIES.

In reply to inquiries from various Agricultural Societies, we have to say, that in consequence of the necessity, under the present depressed state of the public finances, for retrenchment in every department of public expenditure, the Government has deemed it expedient to limit the amount of appropriation in the public estimates for Agricultural Societies, to $60,000, one-half of which, we presume, is intended for either section of the Province. This would give to Upper Canada a considerably smaller amount than was drawn by this section of the Province last year, when, owing to the forming of Electoral Division Societies, under the Act 20 Vic. cap. 32, the amount of the grants was largely increased; but it will not be very much less than was drawn in 1857 and preceding years, under the old Act. We are not in a position to state the precise mode intended to be adopted by Government for carrying out the reduction; but the general effect will probably be, that each Society will receive some 20 or 25 per cent. less than the amount to which they would otherwise be entitled.—Of course the Societies should not neglect to secure the full amount of subscription necessary to obtain the maximum grant available.

# Correspondence.

## ON THE IMPORTANCE OF FLAX CULTURE IN CANADA.

St. Catharines, March 5th, 1859.

George Buckland, Esq.

Dear Sir,—For a number of years back I have taken notice of many ably written articles on the cultivation of flax; but as yet have seen nothing done for the encouragement of its culture.

When I arrived in this country in 1818, I soon began farming in this part of the country, and it was my intention at the time to have gone into the cultivation of flax somewhat extensively; but when I came to ascertain that no market could be had for it in Canada, I of course abandoned the idea of raising flax to any extent. At the time I am speaking of, there was considerable flax raised in the old Niagara district; but it had to be broken and scutched by hand, which was rather a laborious operation; in consequence, the culture of the flax plant was soon abandoned.

I am well satisfied in my own mind that the climate and soil are well adapted for the cultivation of flax in Canada, and if a market was once established in the Province, and one or two sets of breaking and scutching mills were introduced, the time would not be far distant when they would be found in every part of the Province, which would soon add beneficially to the resources of the country. At an early period of my life, I was on a farm in the Province of Ulster, Ireland, but a short distance from Belfast, in the very centre of the linen trade, where flax was raised very extensively, and subsequent to my coming to America, I had charge of a flax mill for some years, and at the present day I could give instructions for building a breaking and scutching mill, such as was in use in the Province of Ulster, in 1816. The cost would not be much, I should suppose not to exceed £60, exclusive of building, which need not be large, and any horse-power used for thrashing purposes would answer to propel the mill. One of those mills, placed nearly in the centre of a township, with three hands, would clean all the flax likely to be raised in any one township, and that, too, in the winter season. Having been employed in the summer season in the cultivation of flax, and in the fall and winter seasons in the management of the mill, I am well persuaded in my own mind, that from the cultivation of the plant till prepared for the heckler, I know the whole minutiæ of the operation.

It appears to me that something ought to be done to counterbalance the loss of the wheat crop, which has been the chief source of our wealth, and that crop having failed

and likely to be a failure for years to come, it behooves us then to try some other that will be as nearly an equivalent as possible to the loss of the wheat crop, and there is no crop (that I know of) more likely to fill the place of wheat (so far as money is concerned) than *flax*. If the Government intend to give encouragement for the cultivation of flax, I am willing, so far as my experience goes, to render every assistance in my power to any one who may embark in the business; with such a mill as I have mentioned, I could instruct any man in a few days to go through the whole operation.

I can take hold of any part of the business myself, having been obliged to do so sometimes when a hand was sick or from some other cause.

As over forty years have elapsed since the mill I have been speaking of was in use, I would not recommend the plan of that mill, without ascertaining what improvement has been made within forty years, in the North of Ireland, for breaking and scutching flax, and if an improvement has been made, it should be adopted in Canada, unless at too heavy an outlay. When I left the County Down, I am not aware of a spindle being used for spinning flax by machinery, in the North of Ireland; the small wheel and the hand loom was all the machinery then used,—nevertheless, the linen trade was carried on very extensively.

I will give you an extract from a well-written article in the *British American Cultivator*, in 1843, which will show a wonderful improvement in the linen manufacture from the time I have been speaking of, 1816. I don't think there was a mill in Belfast, at that time, for manufacturing flax into cloth, that is, by spinning and weaving by machinery. I will give the part most interesting to ourselves:—

"Last year, before a Committee of the House of Commons, which sat upon the export and import, it was ascertained that 80,000 tons of flax had been brought over from the continent to Ireland, at a cost in money of six millions of pounds sterling, which would average £75 sterling per ton. This fact would appear almost incredible; but when the extent of the Irish linen manufactures are taken into consideration, all doubts on the subject would be set aside. In Belfast alone, there are upwards of forty mills in full operation, some of which work up fifty tons a week."

I have been ruminating in my mind for some years back, how this important business could be profitably started in this country. The most feasible means that I can now see is that recommended by the *Protectionist*, and copied into the November number of the *Agriculturist*. The writer states, "The great object to be attained is a ready market, at remunerative prices, for every stone of flax offered for sale. Were its cultivation once established, capital would be attracted for the purchase of both flax and seed; but something must be done at the outset. At the risk of being charged with a desire to return to the bounty system, we would propose a plan by which the Government might encourage the growth of flax without expense to themselves, and with manifest advantage to the country. Let the Government establish warehouses in Quebec, Montreal, Kingston, Toronto, and London, for the receipt of flax, and appoint well qualified persons to receive and examine the same, and to grant receipts for the quantity delivered, describing the quality according to a scale agreed upon. Those receipts to state the quantity and quality of the flax, to be payable six months after date, at the current price of flax, less a certain per centage for freight and commission, &c., and to be negotiable instruments passed from hand to hand without endorsement. They would thus obtain at once a money value, while the flax could be shipped in bond and sold by an agent in the British markets. This could be equally well performed by a private company; but, in that case, the receipts would not be available to the farmers so readily as if they had the guarantee of the Government."

I can see no improvement that could be made in the above suggestion, unless in the number of warehouses. I think they might be reduced to two; it would curtail the expenditure from five warehouses to two, and at the same time reducing the number of agents, and I think not much inconvenience would be felt from the reduction. I would recommend one warehouse in Montreal and the other at Toronto, and if in the course of time it may appear necessary to increase the number of warehouses, then it can be done.

If the Government think it advisable to encourage the growth of flax, I think the models of two of the most improved mills would be all that would be necessary: one for Canada East, and the other for Canada West. Those being once established, and their operations satisfactory, the time would not be far distant when like machinery would be erected in every part of the Province.

When we come to look so far back as 1843, and to able writers on the subject of flax culture, when at the same time our wheat crop produced abundantly, and brought more money into the Province than all other crops combined, how much more now should the cultivation of flax be urged on the farming community, when the cultivation of that formerly very important crop (wheat) is a total failure. I don't write this for the purpose of being published; but I wish to draw your attention closely to the subject I have been writing upon. Knowing that you have always taken a lively interest in the welfare of our splendid Province ever since your arrival amongst us, and to impress upon the Board of Agriculture,—and to impress it very strongly, too,—the great importance of taking action on the matter of the cultivation of flax, and that that Board would bring the subject before the Government, and to recommend the importance of taking prompt measures to accomplish what seems to be so very desirable at this time to the community at large. I observed before, that I did not intend this article for publication; at all events, it would be too lengthy for the newspaper press, and being not in the habit of writing articles for publication, the one I have just penned would be rather an awkward production to be placed before the public view; but if, at the same time, you can glean anything from the foregoing that you may think would be interesting to the public, you are at liberty so to do.

I am, dear Sir, yours truly,

JOHN GIBSON.

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## SHORT RAMBLES IN KENT AND SUSSEX.

(*Continued from page* 35.)

I must now leave Rye, and direct my steps to the ancient town of Winchelsea, formerly a place of great importance, but now only a large village, about three or four miles distant. My walk was over a perfect plain, consisting of extremely rich pastures, judging from the thickness and softness of the sod, and the thrifty appearance of the numerous cattle and sheep, which were everywhere to be found, with scarcely a cottage, and only here and there a solitary shepherd, or cattle-man, with his dog. This rich alluvial tract is a continuation of the extensive marsh, extending eastward from Rye to Hythe, and was doubtless formerly overflowed by the sea. The most conspicuous object on this dead level is the ruins of Winchelsea Castle, situated on the margin of the Channel, erected by Henry the Eighth, for the protection of the coast. There is nothing particularly remarkable about this ruin, which is now only tenanted by bats and owls, and other kinds of creatures, which frequently, without ceremony, take possession of buildings when vacated by man. In the distance, on an elevated bank, stands the decayed town of Winchelsea, surrounded on all sides by trees and underwood, green pastures, smiling corn fields, and beautiful hop gardens. I climbed up on the east, a steep bank, thickly wooded, and entered the town by one of its ancient gates, two or three of which are still in a good state of preservation. It would appear that the site of the former town was in the low ground near the ruins of the castle, and that it was entirely destroyed by the inundation of the sea. The following occurs in one of the old perish records:—"Be it remembered, that in the year of our Lord, 1287, in this even of St Agath, the Virgin, was the town of Winchelsea drowned, and all the lands between Climesden and the vocher of Hithe. The same year was such plenty of corn throughout all the counties of England, Scotland, and Wales, that a quarter of wheat was sold for two shillings." Soon after the new town had been erected on a high eminence, in the reign of Edward the Third, the French attacked it, and did much damage, and in the reign of Richard the Second, A. D. 1379, they landed again, and "slew all such as did oppose them, sparing no order, age, or sex." Queen Elizabeth, in a tour she made along the southern coast, in the year 1573, passed through this town, and was so much pleased with the place and situation, that she called it Little London. The remains of three extensive parish churches, Lombard affirms, were standing within living memory, when he wrote in 1575, one of which, at least a part, now remains in the midst of the central square, and must have been originally a capacious and beautiful building. The church only is now used for public worship; it is

spacious and lofty, and its massive walls and roof are literally covered with ivy, which has a solemn and majestic appearance. The south aisle contains two monuments of Knights Templar. It is said that the town formerly contained fourteen or fifteen chapels, which probably belonged to as many religious houses. The gable ends of several are yet standing; the Friars has an arch of uncommon extent and beauty, but the cloisters are taken away, and the cells converted into a family house. This monastery was founded by William de Buckingham, who dedicated it to the Virgin Mary, and it long enjoyed a very high reputation. How pregnant of instructive suggestions are these decayed monuments of the ancient faith and habits of old England! Their inspection, as it were, enables one to live through the past. Winchelsea is a member of the Cinque Ports, and formerly sent two members to Parliament,—among them may be ranked Henry, now Lord Brougham, one among many proofs that the close boroughs, as they were formerly termed, did at least occasionally return distinguished men in the walks of science and literature. The Reform Bill took away the franchise, and connected, for electoral purposes, Winchelsea with Rye.

Between Winchelsea and Hastings, I passed through some rural parishes,—Icklisham, Pett, Udimore, Brede, &c. The country is beautifully undulating, with occasional sea-views,—what, in short, may be characterized as highly pleasing and picturesque. In this part of Sussex there is no waste or unproductive land, and there are rather extensive areas in primitive woods, abounding in forest trees and thick undergrowth, which is cut down every ten or a dozen years, for hop-poles, hoops, faggots, &c. In some places a large outlay of money is made in the improvement of these natural woods, the produce of which, in the hop districts, will sell for £20 to £30, and upwards, per acre, exclusive of the timber trees, many of which attain to great age and size. These natural woods of England are far prettier than those of Canada,—the undergrowth is generally thicker, and the trees more spreading and symmetrical, with denser foliage. In many of these nooks and corners in the beautiful and sunny south, you can as completely retire from the busy haunts of men and smokey chimneys, as in your backwoods, and the solitude is equally complete. In many of the farm houses and cottages of this district, wood is burned in an open fire-place; and the baking of bread is invariably done by wood in brick ovens. Firewood sells for about twenty-five shillings a cord, and faggots, consisting of large bundles of spray, for about twenty or twenty-five shillings a hundred. In the towns, however, coal is principally used; but the amount of fuel required in this climate is not large.

Among the peculiarities of the agriculture of this part of England, that attracted my attention, was the prevalent breed of cattle, denominated the *Sussex breed*. They greatly resemble the Devons, but are larger and coarser, and I should judge, hardier.—Their skins are generally thicker than the Downs, from which this breed is supposed to have been derived. A change of climate and pasture, and more strictness in the breeding of late years, have brought the Sussex cattle into a position of being recognized as a distinct breed, and they are now allowed to be exhibited as a class both at the Smithfield Fat Cattle Show and that of the Royal Agricultural Society. They may be said to belong to the larger breeds of the country; their color is red, with horns somewhat longer than the Devons, with thick shoulders, strong, and moderately short legs; but their general build and symmetry, I think, are scarcely equal to the North Devons, especially of such as I saw at the last shows of the Smithfield Club and the Royal Agricultural Society's Show at Chester. From all I can learn, the cows I should not consider as eminently distinguished for the dairy, and they appear small compared with the bulls, some of which are really splendid animals. For the purposes of working, however, I am inclined to think that the Sussex oxen stand unrivalled. They possess great power of endurance, having great weight of body combined with a sufficient degree of muscular action. They appear to be very docile in the yoke, when properly managed. On most farms in the Weald of Kent, Sussex, and Surrey, too large for three or four horses to manage, oxen are, in addition, usually employed; and it is truly surprising how steady and effective they are at work. You will frequently see two pairs drawing the heavy and clumsily looking turnwrest wheel-plough, in the unprecedently stiff clays so common in this district, turning over a furrow eight or ten inches deep, and although apparently slow in motion, yet doing upon the whole, where heavy and continuous draft is required, as much work per day as horses, with less fatigue and expense. In the woods I saw teams of oxen, consisting of sometimes three, four, and even five pairs, attached to large and heavy vehicles, laden with immense weight of squared timber, or faggots, which they steadily drew along in a style, of which the

strongest and best trained horse-teams would be wholly incapable. I am inclined to think that the Sussex breed of cattle, at least for working purposes, would be admirably suited to the wants of many farmers in Canada and the States; they are unquestionably strong and hardy—reach a large size within a moderate time, and fatten tolerably fast. In the two last qualifications, they are, of course, much inferior to the Shorthorns and Herefords, but little, perhaps, to the Devons, while in the power of endurance and labor they are unquestionably their superiors. I am told, however, by experienced agriculturists, that the employment of oxen in farm work, is rather a sign of a stationary or slowly advancing husbandry, and that upon dry, light turnip lands and rich pastures, naturally suited to the Durhams and Herefords, cattle are now seldom if ever seen attached to the plough. In this part of England, however, the practice of working oxen, although not now so extensive as formerly, since draining and enlarging the fields have been carried out, has yet a strong and wide hold, and must therefore be considered as locally suited and advantageous. The ox, unlike the horse, increases in value as he grows older,—within certain limits,—and can at last be fattened and turned into money. In speaking of the Sussex cattle, I am told that much greater attention has been paid of late years to their improved breeding, particularly in reference to symmetry, and early growth, and ripeness. And there are now several distinguished breeders of these animals, among whom may be mentioned Messrs. Selmes and Troley, in this immediate neighborhood, whose herds will favorably compare, making due allowance for differences in pasture and other local conditions, with some of those of the more popular breeds. There are but a few other varieties bred in this district, and as yet much has to be done in effecting needful changes and improvements in this most important department of agricultural management. As yet, I feel at times somewhat confused with the great diversity of farm practice that I have already observed in different parts of England, and I am mainly guided by the advice and opinions of practical men of good standing. There is here much to learn, and a wide and most interesting field for investigation; and, after all, as far as I can judge, there are some parts of this country, in which the horses, cattle, sheep, and pigs are but little, if at all, superior to some of the best and oldest farming districts of Canada. But I am told that railroads and free trade in corn, by stimulating farmers and allowing of cheap and expeditious intercourse, are rapidly bringing up the more backward districts towards a higher standard of improvement, both as respects the growth of grain, and the breeding and management of live stock, and there can be no doubt that the general agriculture of England is still rapidly improving, with no prospect in view of reaching an ultimate limit.

From Fairlight Down, on the southern slope of which lies the fashionable and flourishing town of Hastings, to which thousands resort at all seasons of the year in quest of pleasure and health, the view on all sides is truly magnificent. The prospects are equally pleasing, whether contemplated agriculturally, geologically, or artistically.—This elevation forms a sort of centre to an extensive district of country which geologists denominate the Wealdon, and is supposed to have formerly been a vast estuary into which large quantities of fresh water were delivered from the higher grounds, ages before the present crust of the globe was consolidated. From this point, on a clear day, the coasts of France, to the south, are distinctly visible, while the north Chalk Downs of Kent, with the bold escarpment of Shakespeare's Cliff at Dover, and the Sussex Downs, with their termination of the bold promontory of Beechy Head, all consisting of white chalk, can readily be seen at a distance, I should suppose, of some sixty or seventy miles. This country is extremely diversified, both in its scenery and soil, and in summer time it has the appearance of a rich garden, with natural woods, and abundance of beautiful trees and green hedge rows appearing in all directions.—In some places the soil is exceedingly rich, particularly the alluvial pastures; in others, the stiff, weald clay approaches within a few inches of the surface, forming a wet, heavy, and poor soil, very expensive to work.

## ON SOWING PLASTER.

Mr. Editor,—As the time is near at hand when the unpleasant and laborious task of sowing plaster must be performed, if we mean to have anything for the grasshoppers to munch this summer, and as few people seem to know how to do it as easily as they might do, I will describe a mode of which I read and have practised for some years, with much comfort and expedition. When your land is tolerably free from obstruc-

tions, not too hilly, and dry enough in spring for a wheel carriage to pass over it without damaging the clover; rise with the sun, or a little before it on a still morning, take a cart (as it is better to turn than a waggon), put a barrel of plaster in the fore end of it and a shovel to fill with; fix a box or tub close by the tail board of the cart, about the height of your knees, and an old chair or seat in front of it, fill your tub, take your seat, tell your boy to drive on, and commence sowing over the tail of the cart with both hands, just as you would do if walking and carrying the article, the difference being, that instead of walking into the dust, you are riding away from it. and by being elevated, can sow a wider cast; instead of having to go across an acre several times, while sowing it, to fill your hopper or tub, you can do it without moving a yard; instead of having your mouth, nose, and eyes, filled with the dust, you may be as clean as when you began, except a little scattered upon your trousers; when the wind rises, quit, and you will do more in one morning, than in half a day by the old method.

Yours, &c.,

AGRICOLA.

OTONABEE, Feb. 18.

# Agricultural Intelligence.

## AGRICULTURE IN THE UNITED STATES.

At the Agricultural Fair, recently held in Fayette County, Indiana, the Hon. Horace Greely delivered an address, in which he drew the following picture of the present condition of agriculture in the United States:

"It is a melancholy truth that while the arcable product of Great Britain has increased at least fifty per cent within the last century, that of the United States has actually fallen off! With all our boasted progress, our fairs and premiums, our book and periodicals treating wholly or mainly of agriculture, our subsoil ploughs and vastly improved implements, our self-glorifying orations and addresses at gatherings like this, and our constant presumptions and assumption that no people were ever so enlightened and free from antiquated prejudices as ours, this is the net result. Even I can remember when the New England farmers grew wheat as an ordinary crop; now you shall not find a patch of wheat grown this year or to be grown next on one New England farm in five hundred. Thirty-five years ago when I was a boy employed at land-clearing in Western Vermont, I used to see thirty or forty wheat-laden waggons pass daily in October and November, on their way to market at Troy or Albany; now Vermont does not export a bushel of wheat, but imports at least two-thirds of the Western flour consumed by her people. In those days Western New York produced larger crops of wheat than any other section of our Union; and 'Genesee flour' was about the best that could be bought anywhere; to-day New England not only does not, but could not, by her ordinary processes produce eight bushes of wheat to each arable acre, while the product of my own State does not exceed ten bushels from each acre sown."

Nor is this fearful falling off, by which, Mr. Greely says "we are quite likely, before the close of this century, not to be able to grow enough for our use," confined to the North and East. It is universal throughout the oldest States. These are his words: "Our longest cultivated soil is, in the average, far poorer this day than it was when Columbus first set foot on the shore of the New World, and the larger part of it is steadily growing worse. Old Jamestown, the site of the first successful attempt by Englishmen to colonise North America, could be bought to-day for less than it was worth in John Smith's time; and Plymouth Rock, though not quite so badly run down, cannot prudently take on airs at the expense of her rival. There are hundreds of square miles together of Maryland, Virginia, and the Carolinas, that yield absolutely nothing, and are scarcely worth taking as a gift; that is to say, it would be cheaper to buy good lands at $50 per acre than to take these as a present and make them worth as much as the former. In whole sections they know no other way of renovating worn out fields than to throw them out into common and let them grow up to bushes, and ultimately to wood, then clear and start afresh—which is a little behind the agricultural wisdom of the days of Moses."

## DESCRIPTION OF THE BREEDING HORSES OF THE QUEEN OF ENGLAND.

[This and the following article on Horses, are taken from an excellent weekly paper recently established in London, devoted to Rural Sports and pursuits, entitled *The Field.*]

In pursuance of our intention to continue an account of the breeding studs of England, we have this week paid a visit to that of Her Majesty, at Hampton Court.—There we were happy to find that best of blessings, health, amongst old and young in every paddock, box and hovel. The first of the mares we saw on entering the gates were Barcelona, by Don John, Vivandiere, sister to Voltigeur, and Vesuvienne, by Gladiator, the dam of Volcano, winner of the Prince of Wales' Stakes, at York, last year. We were next shown Chaseaway, by Harkaway, and Crochet, by Melbourne, the latter in foal to Stockwell. Each of these mares is sent by her owner to Orlando; twelve or more are to follow them, at 50 guineas each. Thus a nice little total of £735 will be earned by him for extra service. This horse's door was then thrown open, and we stood in the presence of the most gentlemanly-looking horse in existence. He is to all appearance as fresh as ever, and a living proof of the good results of care and vigilance, added to moderation in the use to which a stallion may be put during the season. His fame is too widely spread to require a word of praise; the best test of his excellence being the performances of his stock, and the prices realised by them when yearlings. Should those of 1859 continue to thrive as they now do, the stud groom needs not to be under any apprehension of their falling short of last year's average.

In the next box now stands the True Cure, well known in Yorkshire. He and his colleague Orlando are of the same age, and look equally fresh and well. The Cure has taken the place occupied last year by Barnton, who has gone to the Swalcliffe stud. His size of limb makes him appear less in height than he really is; his length gives every evidence of his having been, and being certain to beget a *racehorse.*—He has not a white hair about him, except a saddle mark or two. Ireland may well be proud of having sent over such a nag as Faugh-a-ballagh to beat him for the St. Leger, although in their maiden essay together on the same ground The Cure had defeated him. He is one of the best tempered stallions in the world, and if all we have heard be true, his son M. D., who broke down in running for the Derby of 1857, was by far the best horse of his year. The first yearling that we saw was a chestnut filly, by Orlando out of Martha Linn, (Voltigeur's dam). She is very neat, with the white heels of her sire's family; having been a little amiss she was standing in a box by herself, and is rapidly improving. On again going into the paddocks, we found two fine fillies by Orlando, with the easily-recognised family marks—the one a chestnut out of Torment by Alarm, the other a bay out of Little Finch by Hornsea. These are sure to repay their breeder, Mr. Greville: of he two we preferred the chestnut. We then beheld a remarkably neat and clever colt, and one that will bring a large price at the sale in June. He is not over large, but has two powerful recommendations, he is a fine mover, and brother to Teddington. In the adjoining paddock was a bay filly by Orlando out of Nelly, sister to Voltigeur, with the neatness of her father, but rather inclined to be narrow; and a filly by Barnton out of Trickstress by Sleight-of-hand. A bay colt by Barnton, out of Gin's dam by Sir Hercules, with crest erect, like a "monarch of all he surveyed," was ranging his paddock in all the happiness of an animal in the full vigor of his prime. He had been a poor, puny foal; but is making up for lost time, and hourly improving as he grows. Two bay daughters of Orlando were the next we were introduced to: one out of the Venison mare, sister to Filius, with most beautiful back and loins; the other sister to Fitz Roland, showing all the quality of her brother; her quarters are well let down, thighs long, hocks near the ground, and action unexceptionable. Orlando has got winners of the Derby and St. Ledger; his turn seems now coming to add the Oaks to his list. A chestnut son of Newminster and Himalaya by Bay Middleton, and a brown son of Barnton and The Arrow, by Slane, next came under inspection. These are both clever; the one by Barnton looks like making a useful horse, being, as all the Barntons are, of good size, and to all appearance, hardy. We then found at their mangers, and making themselves comfortable with winter oats (43 pounds to the bushel) and judiciously mixed with carrots and a few split peas, a chestnut colt by Orlando out of Equation, and a brown

by Barnton out of Rosaline—the latter a strong growing colt, and the former with a shoulder sloped enough to satisfy the most fastidious stickler for symmetry. A brown colt, by the Flying Dutchman out of Nina, by Cotherstone, and another by Barnton out of Amazon, by Touchstone, did not take our fancy so much as many of those previously mentioned. The young Dutchman is somewhat deficient in his quarters, and the Barnton too high on his legs with a plainish head. In the adjoining hovel and yard stood two truly worth looking at—both so quiet as to dispel any doubt about the kindness of their grooms, or whether, before handling them, it would be necessary to send for Rarey. On our praising one of them, with, we hope, an excusable degree of energy, Ransom lifted his legs and feet, which little ceremony seemed to be exactly to the sensible creature's taste. Could he have spoken he would have told us that the best animals are the most gentle. He is a chestnut, and has a white blaze down his face, but no more white about him. He is by Orlando out of Flight, by Jereed, and to our unskilled mind, "All the world to nothing," the pick of the basket. The other is a level, handy-looking brown colt, by Barnton, dam by Pantaloon out of Touchstone's dam, combining in his veins the valuable blood of Blacklock and of Whalebone. He is every bit a quiet as his partner. A bay colt, brother to Imperieuse and Eurydice, is light and airy, but from having been a late foal is rather undersized; and a bay or brown, by Barnton out of Lady Palmerston, by Melbourne, which stood with him, is a powerful colt, with limbs that bid fair to become as large as those of his lately departed grandsire.

This brought us to the end of the yearlings belonging to Her Majesty, and we then saw two mares in foal to the Flying Dutchman, namely, Distaffina, who beat Surplice at Goodwood in the wet season of 1848, and Bay Celia. On quitting their paddock we were shown two colts by Barnton—the one out of Raillery by Pantaloon, the other out of Melody by Bay Middleton; these colts are large and much alike. Adjoining them was a remarkably fine chestnut colt by Orlando out of Twitter; with large hocks and thighs and a staying appearance; and a bay out of Alkali, which looked likely to grow into a quick active horse; both of good size. We continued our walk through the paddocks amongst mares in foal to Orlando and to Barnton, with others to West Australian, to Stockwell, to Voltigeur, to Newminster, to Bolingbroke, and Ellington. The most beautiful of them all to our eye appeared Eulogy by Euclid; her roomy body on short legs, her pleasing countenance, and large easy ears, give one the *beau ideal* of what the dam of Imperieuse should be. She is again in foal to Orlando.—Her half-sisters, Volley and Vivandiere, are also there, and her dam Martha Lynn, now 22 years old, in foal to Ellington. Miss Twickenham, 21 years old, dam of Teddington; Jamaica, dam of Yellow Jack, and a few more are barren A three year old filly, by Stockwell out of Miss Twickenham, and Braxey, half-sister to Blink Bonny, in foal to Voltigeur, are additions to the stud for this season. Frantic's dam, worn out with age and infirmities, was obliged to be destroyed.

The Barntons are easily distinguished from the Orlandos by their Blacklock heads; but where the blood of that famed stallion and Whalebone can be mixed through Orlando and Barnton, the cross should nick exceedingly well. Not the least happy-looking of the animals that mused in idleness and luxury in this well-sheltered corner of Bushey Park, are ten black polled Scotch Galloways, which came from Brentwood Fair in October, and are doing service to the pastures by "eating up the rough stuff." The mares expected to foal earliest are Apricot and Lady Melbourne, those which will drop their foals the latest are Torment and Distaffina; but none will be later than the first or second week in May. There is ample room for separting the colts, as the spring advances and they begin to be saucy; for at least eighty boxes and hovels, with twenty-six paddocks of about three acres each, are ready for their accommodation.

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Bull Taming.—The Duke of Portland, highly approving of the system of Mr. Rarey in reference to the taming of horses, sent his head groom, Mr. James Thompson, to undergo a course of instruction under him. Since Mr. Thompson's return to Welbeck, he has tried the system on a valuable but very vicious Alderney bull, which had become almost unmanageable, and even a terror to his keeper. He practised a short time on him in his shed, and then took him into the open park, having only Messrs. J. and A. Field with him as spectators. After operating on the bull for a short time, Mr. Thompson and his friends each lay down between his legs, the bull having become as tractable and docile as a child.

## PLOUGH HORSES AND THEIR TREATMENT.

The treatment of the farm horse at this season of the year requires great attention, patience and labor. His work is connected either with the plow or the cart—if with the former, his legs and belly are not so much exposed to damp and mud of a sticky nature as when performing his work in the cart in a very soft and wet road. The operation of cleaning and drying cannot be too carefully attended to. There are, however, many of our farm servants who undertake the duty of driving our horses in the wagon and plough who are quite unconscious of the evils which arise from inattention to scraping and cleaning their horses after work in wet weather. The scraping knife generally used in the farm-stable is a piece of iron hoop, which will answer the purpose if properly applied, in the absence of a wooden instrument. In the case of a team having been exposed to a great deal of rain, the scraping instrument will be found exactly suited to remove the wet mud, the rain, and perspiration. The operation need not be confined to the belly of the horse, but to the neck and sides also, and other parts to which the knife may be applied. Drying is necessary before cleaning. Cart horses have generally a large quantity of long hair attached to their heels.—Where the horse, with very long hair growing from the back and hollow of the pastern is daily exposed to wet feet, the plan of partially reducing the hair will be found to hasten the process of drying, which ought to be the great object of the farm servant when engaged in whisking the horse. The following we quote from good authority: "When the horse is carefully tended after his work is over, his legs quickly and completely dried, the less hair he has about them the better." It is the cold produced by evaporation that does all the mischief; and if there be no moisture to create evaporation there can be no cold, no loss of heat save that which is taken from the air.—If there were more hair about the heels, they could not be so soon nor so easily dried. In some horses, the hollow of the pastern is very apt to crack; the unctious secretion is not sufficiently plentiful to keep the skin from cracking. This evil, with others of a more serious description, may be numbered in the train of diseases which are to be traced to bad grooming. We do not recommend that the mane and the tail of the draught-horse should be often thinned, but that they be daily combed and brushed. Heavy draught horses are very subject to colic, brought on by water given after a liberal feed, by exertion with a full stomach, and by a sudden change of food from hay to grass, or from oats to barley. The treatment to be used in case of colic is recommended as follows, in "Stewart's Stable Economy" (where draught horses are kept this remedy should be always at hand): "Take a quart of brandy; add to it 4 oz. of sweet spirit of nitre, 3 oz. of whole ginger, and 3 oz. of cloves. In eight days this mixture or tincture is ready for use; the cloves and ginger may still remain in the bottle, but they are not to be given. Set the bottles past, and put a label upon it; call it 'colic mixture.' The dose is 6 oz., to be given in a quart of milk or warm water every fifteen or twenty minutes, till the horse be cured. Keep his head straight and not too high when it is given. Rub the belly with a soft wisp, walk the horse about very slowly, or give him a good bed and room to roll.

"In eighty cases out of ninety this treatment will succeed, provided the medicine be got over the horse's throat before his bowels become inflamed, or strangulated, or burst. The delay of half an hour may be fatal." A disease called the *Stomach or Grass Staggers* has been lately brought before the public by Professor Dick, of the Veterinary college, Edinburgh. The Professor describes the symptoms of the disease in a horse he had been called to see. He found his head was pressed into a corner of a loose box in which he was placed, and with difficulty could he be moved from this position. The animal appeared quite unconscious; his pulse was about forty, full and strong; he would take nothing, and his bowels were inactive. He was therefore bled freely, a dose of laxative medicine given; glysters were administered and cold water constantly applied to his head. The horse got worse during the night, and died next morning. This disease appeared as an epizootic since the summer of 1846; the season of the year, as well as the nature of the food, being concurrent with the cause. Farm horses are more liable than any others, but neither carriage nor stable horses are exempt. Rough, course grasses, which spring up luxuriantly on moist ground in hot and dry seasons, when taken into the stomach, after using hay or another kind of feed, produce staggers, from inflammation of the stomach. The principal

symptom described by the Professor is that of paralysis, or want of power to direct his motions. The same disease is stated to be common also amongst cattle, but in its effects more fatal, the symptoms and causes of which we shall refer to at another time.

# Miscellaneous.

## BEE-KEEPING.

We take the following report of a lecture on this subject by the Rev. F. T. Scott, Vicar of Sibertswold, (England), from the *Dover Chronicle*, delivered before the Philosophical Institution of that town. The subject is one possessing both a scientific and economical value, and cannot fail to interest many of our readers. It is true that the climate of Canada is not equal to that of the British Islands for the profitable management of bees, the absence of the heather, bean-fields, and early spring flowers so common in the latter, must necessarily be somewhat disadvantageous. Yet, we think that many of our farmers, in the better cultivated districts, might commence the keeping of bees with a good prospect of success, and their products in wax and honey would furnish a domestic luxury, and might be made a means of profit. Clover, Buckwheat, &c., which are extensively cultivated in this country, furnish, when in blossom, ample material for bees, whose habits and instincts form an admirable study for the young, leading to the formation of careful habits of observation, and directing the mind to a devout contemplation of the great Artificer, whose wisdom and goodness are as conspicuous in all the works of His hands, whether small or great.

The Chairman briefly introduced the lecturer, who said,—When a request was made to him in the course of last summer, as one of the vice-presidents of the East Kent Natural History Society, to deliver a lecture before their excellent institution, he consented to do so, on one condition, and that was that he should be allowed to select for his subject the one on which he was about to address them that evening, viz., the "Honey Bee." He was induced to make that condition, first, because for the last few years, his attention had been specially directed to that branch of natural history; and hoping, therefore that he might be enabled to convey to others some of the information on the subject which he had been enabled to collect for himself, either from the writings of former bee-authors, or from his own experience in bee-keeping; and in the second place, because he considered the subject was one which well deserved the attention of the philosopher and man of science as well as the naturalist, for he felt sure there was no duty so interesting, nor perhaps so profitable, in the highest and best sense, as the philosopy of nature. It not unfrequently happened that in this branch of intellectual research, the smaller the object upon which attention was engaged, the greater were the marvels discovered to be connected with it; and this, he conceived, to be specially the case with the subject of the present lecture. The study of it had engaged the attention of many master minds, from the very earlist, down to modern times.

The lecturer afterwards went on to say that in introducing the subject of the honey-bee, he would only add, that in putting together a few notes upon it, he had not scrupled to avail himself of the labours of former bee-writers, wherever it suited his purpose, nor had he hesitated to give his own opinion where it was opposed to names who are held to be authority on the subject. It had been his endeavour to treat the subject in a popular, rather than a scientific way, and if he succeeded in arresting their attention, and exciting their interest in behalf of his little favourite—the honey-bee—the small labour which he had expended in preparing the lecture, would be amply repaid. He then said he should draw their attention to those points in connexion with the honey-bee, in doing which he should endeavour to throw some light—first, upon its natural history; secondly, its productions; and, thirdly, its management.

Under the first head he proceeded to describe the various tenants of the hive, and the different kinds of bees which were necessary to form a complete family or stock. Of

these, first and foremost came the Queen bee, the presiding goddess of the temple—the worshipped mother of the whole family—the Queen mother who had actually given birth to every individual bee, whether male or female in the commonwealth; for they must bear in mind that was always the case, when a stock of bees lives to be a year old. The Queen bee was easily distinguished from all other bees, and might be known by certain peculiarities, not principally by its size and form; so that a practised bee-keeper had no difficulty in picking her out from any quantity of bees. The lecturer then described those peculiarities, and said next in order to the Queen came the most numerous tenants of the hive—the workers or working-bees—which, by some writers had been called neuters or mules, as being neither males nor females; by others, female non-breeders; and from what he should show them by and bye, he thought they would consider the latter as the more appropriate title. These bees are the most numerous class in the hive, there being from 12,000 to 20,000 in a single hive, and when swarming was intentionally prevented, even 50,000 or 60,000. The workers were the smallest numbers of the bee community, and were furnished with a long flexible proboscis or tongue; they have a peculiar structure of the legs and thighs, on the latter of which were small hollows or baskets, and they were armed with a straight sting. Upon these bees devolved the whole labour of the colony; they nursed and reared the young; they guarded the entrances of the hive; collected and stored the provisions, and built the cells in which it was warehoused, as well as those which contained the brood. Now, when it was considered the labour which fell to this portion of the family, he thought his hearers would readily allow that they deserved the title of the workers.

The third kind of bee in the family were the drones, or male-bees, and these would be found to the number of 1,500 or 2,000, according to the strength of the family. They made their appearance about the end of April, or beginning of May, and were never to be seen after the middle of August, except under very peculiar circumstances. After giving a full description of the drone, the lecturer proceeded to notice the Queen bee as the parent of every individual in the stock, and therefore able to produce queens, workers, and drones. This office of multiplying the species she performed by laying eggs in cells constructed for their reception by the working bees. The cells varied from one another in size, form, and direction, according as they were intended to be the depositaries of eggs that are to become queens, workers, or drones. The eggs of the mother bee were then described, as well as the mode in which the various kinds of bees were propagated, after which the lecturer made some observations on swarming, which he looked upon as the most interesting feature in the bee economy. He pointed out the best mode to be adopted in those matters, and then noticed the length of time bees were supposed to live—a question, he said, which was, perhaps, very difficult to decide with any degree of accuracy. From all the recorded observations and experiments which had been made with a view to such discovery, the general conclusion was, that the queen bee lived from three to four or even five years; the workers only from three to five months,—this variation depending in a measere upon the time of year when they were hatched, and the work they had to do. Of the drones, as he had before said, their lives extended from April to August, unless, for special reasons, they were permitted to remain in the hive for a longer period: in fact, those unfortunates may be said, from their very birth, to live only by sufferance, and to be merely tenants at the will of others.

After some further remarks on the first part of his subject, the lecturer spoke of the productions of the honey-bee, and in doing so observed that they were at once reminded that not only did that insect afford matter of interest to the philosopher and naturalist; but the consideration, if not the study of it, also merited the attention of the community at large, for it was a profitable, as well as a pleasurable subject. The honey-bee could boast of some importance, both in a social and commercial point of view. Very few people were to be found who were proof against the attractions of the full honey-comb; and the large quantities of honey and wax annually imported into this country, prove that those articles contribute greatly either to their necessities or their luxuries; perhaps he might say, to both, for the medicinal properties of honey were too well known to admit of any doubt, and the elegancies of life, which wax was made to supply, did not need discussion. First in importance among the productions of the busy-bee was that of honey, and from which it therefore derived its specific name the honey-bee. This delicious liquid the insect collected from the flowers and leaves of trees and plants. The other productions of the honey-bee, wax, propolis, and bee-head, or brood-head, were then noticed, the reverend gentleman concluded this part of his

lecture by remarking that he had intended to have given some statistics on the subject of the importation of honey and wax into this country, and thus have proved to them the vast importance of the honey bee; but time warned that he must hasten to the discussion of the third part of his subject in which he proposed to treat of the management of the honey-bee. He cautioned his hearers against attaching too much importance to his remarks, because his experience in bee-keeping did not extend beyond a period of ten years; but during that time he had made himself acquainted with the various kinds of hives and boxes both ancient and modern, as well as the different modes of securing the produce of the little insect. He was enabled, therefore, to speak from his own knowledge and practice, as well as from the recorded experience of others on the matter. Every bee-keeper, whether he sets out with the prospect of pleasure or profit, or of both combined, should furnish himself with a bee-house as it would serve to keep his bees cool in summer and warm in winter; besides which he might thereby make his property more secure by having it placed under lock and key; for he was ashamed to say that the practice of stealing bees was still indulged in in country places, where the poor man had no such protection as he had recommended, for his stock in trade. He hoped, however, that, now they had a rural police, that system of petty robbery would be put an end to, and the poor cottager's garden ornament and pride, be in future unmolested.

Having first recommended a bee-house or apiary, he next came to the subject of hives or boxes, and here at once was the most "vexatious question" which engaged the attention of the bee-master. The wooden box and the straw-hive, having each their champions amongst the ranks of bee-writers, his opinion was, that it signified but little whether his hives were made of wood or of straw, provided they were of the right size, of proper construction, and placed in a good situation, and tenanted with a numerous colony. If they paid a visit to his bee garden and apiary, they would find about an equal number of boxes and hives, and the difference of this yield in honey he was enabled to trace, not to the material of which they were constructed, but to the prosperity and number of the family by which they were tenanted. In the year 1857, the yield of the two, (taking the bees'-box, and the bees' straw-hive) was exactly equal, whilst in the present year the largest yield was from a wooden box which stood in his study window, amounting to the large quantity of 32lbs. nett. After giving his opinion as to the best mode of taking honey from the hive, the lecturer said it was perhaps hardly necessary to tell them to which class of bee-keepers he belonged, namely, the conservative or destructive, and which mode of taking honey was humane or cruel; for they had no doubt already guessed that he practised the humane system, and had shown himself in these politics to be a Conservative to the back-bone. In this matter, he thought they would all allow that the Conservative was also the most liberal, for he only took from his bees what honey they could spare, leaving them enough for their own use in the winter, and not sacrificing the life of a single bee, if he can possibly avoid it; whilst the destructive was so inhuman, that he killed all his bees, and took all their honey. He waited till they had finished their summer's gathering, and then he applied the brimstone-torch, and for his pains gets a quantity of honey which must, more or less, be defiled by the foul vapours which had destroyed his bees. The conservative bee-keeper had an advantage over the destructive, by being earlier in the market; for he took the honey as the bees made it, and sometimes commenced deprivation as early as the month of May, and in a favourable season, continued to increase his stores to the end of July. Let not the bee-keeper, the lecturer said, though a conservative, and with a heart full of humanity, be too greedy of gain, for a man could not grow rich suddenly, and at the same time honestly, even in his pleasant craft, the crop of honey depending chiefly upon circumstances which are altogether beyond his control. There must, for instance, be a genial season, and a plentiful bee-pasturage, or vain would be the labours, and melancholy the prospect of the anxious and industrious bee-keeper. In this variable climate, only three or four good seasons could be calculated on out of ten; so that the average yearly produce of stock must not be set at too high a figure, or disappointment would be the inevitable result. In a decidedly bad season in this part of the country, the gains upon a stock managed upon the humane system must be set down at *nil*, the bees only storing as much honey to help the family during the winter; whereas, in a favourable one, the profit may be reckoned at from 10lb. to 30lbs. of pure honey, worth in the London market from 2s. to 2s. 6d. per lb. Under very favourable circumstances and in a good season, one single stock had yielded 40lbs. and 60lbs., and even as much as 80lbs. The latter was the largest take he had ever heard of, and he saw it in a shop in Holborn last year. It came from the neighbourhood of Huntingdon, the glass being filled in thir-

teen weeks. The monster glass was exhibited at many places, and gained many prizes; and he only wished their eyes could be gratified, as his were, with so charming a sight. In conclusion the lecturer recommended every person who had the opportunity, to lose no time in becoming beek-keepers, and carry on their business on the humane principle; to avoid disappointment, they must resolve to be content with a moderate share of the profits in a concern in which they could be said to be little more than a sleeping partner, and let their standing motto be "God save the Queen and the People."

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Dutch Butter Making.—There they come, the milkmaid and the boy. The boy is towing a little boat along the canal, and the maid, with her full blue petticoat and her pink jacket or bedgown, walks beside him. Now they stop; she brings from the boat her copper milk pails, as bright as gold, and, with a cooing greeting to her dear cows, sets down her little stool on the grass, and begins to milk. The boy, having moored his boat, stands beside her with the special pail, which is to hold the last pint from each cow; the creamy pint which comes last because it has risen to the top in the udder.—Not a drop is left to turn sour and fret the cow. The boy fetches and carries the pails, and moves as if he trod on eggs when conveying the full pails to the boat. When afloat, there is no shaking at all. Smoothly glide the cargo of pails up to the very entrance of the dairy, where the deep jars appropriate to this "meal" of milk are ready—cooled with cold water, if it is summer, and warmed with hot water if the weather requires it. When the time for churning comes, the Dutch woman takes matters as quietly as hitherto. She softly tastes the milk in the jars till she finds therein the due degree of acidity; and then she leisurely pours the whole—cream and milk together—into a prodigiously stout and tall upright churn. She must exert herself, however, if she is to work that plunger. She work it!—not she! She would as soon think of working the mills on the dykes with her own plump hands. No—she has a servant under her to do it. She puts her dog into a wheel which is connected with the plunger; and, as the animal runs round, what a splashing, wolloping, and frizzing is heard from the closed churn! The quiet dairymaid knows by the changes of the sound how the formation of the butter proceeds; when she is quite sure that there are multitudes of flakes floating within, she stops the wheel, releases the dog, turns down the churn upon a large sieve, which is laid over a tub, and obtains a sieveful of butter, in the shape of yellow kernels, while the buttermilk runs off, for the benefit of the pigs, or of the household cookery.—*Dickens's Household Words.*

A Tame Rat.—Some time ago the driver of a Bow and Stratford omnibus was moving some trusses of hay in his hayloft, when, snugly coiled up in a corner, he found a little miserable-looking rat, whose mamma, having carefully tucked him up in bed, had gone out on a foraging expedition to find something for her darling's supper. The little fellow being of a remarkably piebald color, excited the pity of the omnibus man, who took him up, and brought him home to his family. The children soon took to their new pet, and named him Ikey, after ther eldest brother whose name was Isaac. The little creature soon grew up, and reciprocated the kindness he had received, by excessive tameness towards every member of the family. He was therefore allowed to roam about the house at perfect liberty. His favorite seat was inside the fender, or on the clean white hearth, but strange to say, he would never get on it unless it was perfectly clean. On one occasion, when the good wife was cleaning the hearth, she gave Master Rat a push; up he jumped on the hob, and finding it an agreeable resting place, there he stayed. As the fire grew brighter and brighter, so the hob became warmer and warmer, till at last it became unpleasantly hot; but he would not move from his perch till the hair on his legs and body became quite singed with the heat.—His master had a perfect control over him, and made, for his special benefit, a little whip, with which he taught him to sit upon his hind legs in a begging posture, jump through a whalebone hoop, drag a small cart to which he was harnessed, carry sticks, money, &c., in his mouth, and perform many other amusing tricks. The rat perfectly understood the meaning of the whip, for, whenever it was produced, and his master's countenance betrayed coming wrath, in fear and trembling he would scamper up the sides of the room or up the curtains, and perch himself on the cornice; waiting there till a kind word from his master brought him down again, hopping about, and squeaking with delight. In these gambols of mirth he would run so fast round after his tail, that it was almost impossible to tell what the whirling object was. At night he would

exhibit another cat-like habit, for he would stretch himself out at full length before the fire on the rug, seeming to enjoy this luxurious way of warming himself. This love of warmth made him sometimes a troublesome creature, for when he found the fire going out and the room becoming cold, he would creep up into his master's bed, and try to insert his little body under the clothes. He was never allowed to remain here long, but was made to decamp as soon as his presence was discovered. He then took up his refuge in the folds of his master's clothes, which were placed on a chair, and of these he was allowed to retain quiet possess on till the morning. The master became so fond of his rat that he taught him, at the word of command, "Come along Ikey," to jump into his great-coat pocket in the morning, when he went out to his daily occupation of driving the "bus." He did not, however, carry him all day in his pocket, but put him in the boot of his 'bus to act as guard to his dinner. But why did not the rat eat up his master's dinner? Because, as said the man, "I always gives him his belly-full when I has my own breakfast before starting." The dinner was never touched, except when it happened to consist of plum-pudding. This Ikey could not resist; his greediness overcame his sense of right, and he invariably devoured the plums, leaving the less dainty parts of the repast for hir master. The rat acted as a famous guard to the provisions, for whenever any of the idle fellows who are always seen lounging about the public houses where the omnibuses bait, attempted to commit a theft, and run off with the bundle out of the boot, Ikey would fly out at them from under the straw, and effectually put to flight the robbers. At night he was taken home in his master's pocket, and partook of the family supper; but if any strangers happened to be present, he was taken with a shy fit, and in spite of his hunger, secreted himself till they had gone. His teeth, after a time, became bad and worn out, and the children finding this out, delighted to give him a sort of hard cake made of treacle, called, in infant parlance, jumbles or brandy snacks. Of these, Ikey in his younger days was very fond; but now, on the contrary, they gave him much trouble to masticate, and his perseverance and rage when attacking the said brandy-snacks caused the young folks many a hearty laugh. This rat is, I believe, still alive, and enjoys a good health, though the weight of age pressing on his hoary head, he requires many little attentions from his kind and tender-hearted protectors.—*Buckland's Curiosities of Natural History.*

To Make Hard Candles of Soft Tallow.—I noticed a request a short time since in the *Country Gentleman*, for a receipt to make soft tallow hard. I send you one I know by experience to be good. To twelve pounds of tallow take half a gallon of water, to which add three table-spoons of pulverised alum, and two of saltpetre, which heat and dissolve; then add your tallow and one pound of beeswax; boil hard all together, until the water evaporates, and skim well while boiling. It should not be put in your moulds hotter than you can bear your hand in. The candles look much nicer when the wicks are not tied at the bottom. It is not only a disagreeable task to cut the wick off, but it injures the moulds. Never heat your moulds to draw your candles in cold weather. Perhaps it is not generally known that tallow from beeves fed on corn or grain, is much softer than when fed on grass or clover.—Therefore the tallow from grass-fed cattle should always be hard with the addition of very little alum and beeswax. In very cold weather much less alum must be used, or they will crack so as to fall to pieces sometimes; and a third more of each should be used in very warm weather if the tallow is very soft With little management you can always have hard tallow for summer use where you make all your own candles.—*Country Gentleman.*

Blessedness in Sorrow.—There are times when some great sorrow has torn the mind away from its familiar supports and laid level those defences which in prosperity seemed so stable—when the most rooted convictions of the reason seem rottenness, and the blossom of our heavenward imagination goes up before that blast as dust—when our works, and joys, and hopes, with all their multitude, and pomp, and glory, seem to go down toge her into the pit, and the soul is left as a garden that hath no water, and as a wandering bird cast out of the nest—in that day of trouble, and of treading down, and perplexity, the noise of voices, the mirth of the tabret, and the joy of the harp, are silent in the grave. Blessed is the man who, when cast into this utter wretchedness, far away from all creatures and from all comfort, can yet be willing, amid all his tears and his anguish, there to remain as long as God shall please.—*British Quarterly.*

A PET MOLE.—Being very desirous of watching the mole in its living state, I directed a professional catcher to procure one alive, if possible; and after awhile the animal was produced. At first there was some difficulty in finding a proper place in which to keep a creature so fond of digging; but the difficulty was surmounted by procuring a tub, and filling it half full of earth. In this tub the mole was placed, and instantly sank below the surface of the earth. It was fed by placing large quantities of earth-worms or grubs in the cask; and the number of worms that this single mole devoured was quite surprising. As far as regards actual inspection, this arrangement was useless; for the mole never would show itself, and when it was wanted for observation it had to be dug up. But many opportunities for investigating its manners were afforded by taking it from its tub, and letting it run on a hard surface, such as gravel-walk. There it used to run with some speed, continually grubbing with its long and powerful snout, trying to discover a spot sufficiently soft for a tunnel. More than once it did succeed in partially burying itself, and had to be dragged out again, at the risk of personal damage. At last it contrived to slip over the side of the gravel walk, and finding a patch of soft mould, sank with a rapidity that seemed the effect of magic.—Spades were put in requisition; but a mole is more than a match for a spade, and the pet mole was never seen more. I was no by means pleased by the escape of my prisoner; but there was one person more displeased than myself, namely, the gardener; for he, seeing in the far perspective of the future a mole running wild in the garden, disfiguring his lawn and destroying his seed-beds, was extremely exasperated, and could by no blandishments be pacified. However, his fears and anxieties were in vain, as is often the case with such matters, and a mole-heap was never seen in the garden. We therefore concluded that the creature must have borrowed under the garden wall, and so have got away.—*Common Objects of the Country by the Rev. J. G. Wood.*

PURITY OF CHARACTER.—Over the beauty of the plum and the apricot, there grows a bloom and beauty more exquisite than the fruit itself—a soft, delicate blush that overspreads its blushing cheek. Now, if you strike your hand over that, and it is once gone, it is gone forever, for it never grows but once. The flower that hangs in the morning, impearled with dew—arrayed as no queenly woman ever was arrayed with jewels—once shake it, so that the beads roll off, and you may sprinkle water over it as you please, yet it can never be made again what it was when the dew fell silently upon it from heaven! On a frosty morning, you may see the panes of glass covered with landscapes—mountains, lakes, trees, blended in a beautiful fantastic picture. Now lay your hand upon the glass, and by the scratch of your finger, or by the warmth of your palm, all the delicate tracery will be obliterated. So there is in youth a beauty and purity of character, which, when once touched and defiled, can never be restored; a fringe more delicate than frost-work, and which, when torn and broken, will never be re-embroidered. A man who has spotted and soiled his garments in youth though he may seek to make them white again, can never wholly do it, even were he to wash them with his tears. When a young man leaves his father's house, with the blessing of his mother's tears still wet upon his forehead, if he once lose that early purity of character, it is a loss that he can never make whole again. Such is the consequence of crime. Its effects cannot be eradicated; it can only be *forgiven—Henry Ward Beecher.*

AGE OF ANIMALS.—A bear rarely exceeds 20 years; a dog lives 20 years; a wolf 20; a fox 14 to 16; lions are long lived—"Pompey" lived to the age of 70. The average of cats is 15 years; a squirrel and hare 7 or 8 years; rabbits 7. Elephants have been known to live to the great age of 400 years. When Alexander the Great had conquered one Phorus, King of India, he took a great elephant which had fought very valiantly for the king, named him Ajax, and dedicated him to the sun, and let him go with this inscription:—"Alexander, the son of Jupiter, hath dedicated Ajax to the sun." This elephant was found with this inscription 350 years after. Pigs have been known to live to the age of 30 years; the rhinoceros to 20. A horse has been known to live to the age of 62, but averages 25 to 30. Camels sometimes live to the age of 100. Stags are long-lived. Sheep seldom exceed the age of 10. Cows live about 15 years. Cuvier considers it probable that whales sometimes live to the age of 1,000.—The dolphin and porpoise attain the age of 30. An eagle died at Vienna at the age of 104 years. Ravens frequently reached the age of 100. Swans have been known to live 360 years. Mr. Mallerton has the skeleton of a swan that attained the age of 200 years. Pelicans are long-lived. A tortoise has been known to live to the age of 107.

How to make Yellow Butter in Winter.—Dr. Dadd gives the following directions:—As butter made in winter is generally pale or white, and its richness, at the same time, inferior to that which is made during the summer months, the idea of excellence has been associated with the yellow cover. Means are therefore employed, by those who prepare and sell butter, to impart to it the yellow color, where that is naturally wanting. The substances mostly employed in England and Scotland are the root of the carrot and the flowers of the marigold. The juice of either of these is expressed and passed through a linen cloth. A small quantity of it (and the proportion necessary is soon learned by experience) is diluted with a little cream, and this mixture is added to the rest of the cream when it enters the churn. So little of this coloring matter unites with the butter, that it never communicates to it any peculiar taste.

Composition of Milk at Various Times of the Day.—Professor Boedeker has analyzed the milk of a healthy cow at various times of the day, with the view of determining the changes in the relative amount of its constituents. He found the solids of the evening's milk (13 per cent) exceeded those of the morning's milk (10 per cent.), while the water contained in the fluid was diminished from 89 per cent. to 86 per cent. The fatty matters gradually increase as the day progresses. In the morning they amount to 2.17 per cent., at noon 2.63 per cent., and in the evening 5.42 per cent.—This fact is important in a practical point of view; for while 16 ounces of morning's milk will yield nearly half an ounce of butter, about double this quantity can be obtained from the evening's milk. The casein is also increased in the evening's milk, from 2.24 to 2.70 per cent.; but the albumen is diminished from 0.44 per cent. to 0.31 per cent. Sugar is least abundant at midnight (4.19 per cent), and most plenty at noon (4.72 per cent.) The per centage of the salts undergoes almost no change at any time of the day.—*Edinburgh Medical Journal.*

Don't Overtask the Young Brain.—The minds of children ought to be little if at all tasked till the brain's development is nearly completed, or until the age of six or seven years. And will those years be wasted? or will the future man be more likely to be deficient in mental power and capability, than one who is differently treated?—Those years will not be wasted. The great book of Nature is open to the infant and the child's prying investigation; and from Nature's page may be learned more useful information than is contained in all the children's books that have ever been published. But even supposing these years to have been absolutely lost, which is anything but the case, will the child be eventually a loser thereby? We contend that he will not. Task the mind during the earlier years, and you will not only expose the child to a greater risk of disordered brain, not only, it may be, lay the foundation for a morbid excitability of brain, that may one day end in insanity, but you debilitate the bodily powers, and by so doing, to all intents and purposes the mind will eventually be a loser in its powers and capabilities.—*Dr. Robertson.*

Arab Horses and Stables.—The following description of Arab horses and stables is extracted from one of the admirable "Letters from Algiers," written over the signature of "Phantom," in the London *Field*:—

"The town of Blidah was totally destroyed by an earthquake in the year 1825, and 18,000 persons are supposed to have been buried in its ruins. The survivors retired to the distance of about a mile from the old town, with the intention of raising a new city; however, their love for their old haunts induced them to abandon the idea, and a new town rose from amidst the ruins of the old one. Blidah was surnamed the 'voluptuous' by the inhabitants of Algiers; its situation at the foot of the Atlas Mountains, and its beautiful environs with their stately orange groves, combine to render it a most attractive city. It is here that the Government have placed their establishment for improving the breed of Arah horses. A French officer was so kind as to take us over the stud.

"The civility and genuine good-heartiness of all those French gentlemen we had the happiness to become acquainted with, added greatly to the enjoyment of our visit to Algeria, and we shall always entertain a lively recollection of the hospitality and consideration shown us by our French friends.

"The stud is composed of about forty horses. There are horses from Syria, Tunis, Morocco, and Algeria. Some of them have been bought for large sums. El Maz, a white Syrian horse, of great strength, and standing about fifteen hands, has cost one thousand guineas, and was a present from the Emperor. I was also much struck with

the symmetry of a little chestnut horse, up to immense weight, called Mahaidan, which was bred near Blidah. During the Spring months, these horses make the tour of the Provinces, so that any of the Arabs may improve the breed of their animals gratis, receiving, at the same time, a certificate of the parentage of the colt. The stables are all open sheds, having straw blinds in front, which may be let down, as a protection against either wind, rain, or sun. The food of the horses consists of barley-straw, with a little barley. They are well-cared for, and treated with scrupulous kindness. Their docility is astonishing. It is a striking sight to see so many entire horses standing in long open sheds, without partitions, close together, and merely fastened with the usual cord, which hobbles them all by the fore-leg.

"As I have before observed, the wind of these horses is quite astonishing. Sometimes, in expeditions against the Arabs, the French soldiers have been in the saddle from five A. M. till ten P. M., and performed a distance of eighty-five miles without giving a mouthful of food to their horses. The horses when on the march, never sleep under cover; they are always ready for work, and never ail anything. Three things are indispensable to an Arab horse—a good eye, a good foot, and a good appetite.—The price given for regimental horses varies from three hundred and fifty to four hundred francs. The Arabs illustrate their estimate of the different colors of horses by the following tale:—A chief of a tribe was once pursued by his enemies. He said to his son: 'My son, drop to the rear, and tell me the color of the horses of our foe—and may Allah burn his grandfather!' 'White,' was the answer. 'Then we will go south,' said the chief; for in the vast plains of the desert the wind of a white horse will not stand in a protracted chase.' Again the chief said, 'My son, what colored horses pursue us?' 'Black, O, my father.' 'Then we will go amongst the stones and on rocky ground, for the feet of black horses are not strong.' A third time the young Arab was sent to the rear, and reported chestnut horses. 'Then,' said the old chief, 'we are lost; who but Allah can deliver us from chestnut horses?' Dun or cream-colored horses the Arabs consider worthless, and fit only for Jews to ride. They say also that a flea-bitten horse is never a bad one."

The Drainage of Lake Haarlem.—On the 7th July, 1848, the works for draining the Lake of Haarlem commenced, and on August 1, 1852, the *Staats Courant* announced that the whole of that immense lake was dry. At the commencement of the present year, 17,000 hectares (2½ acres each) of good land were under cultivation.—Farms to the number of 2,518 have been formed, and 157 dwelling-houses and 721 stables and other buildings constructed, for a population of 5,157 souls. Large depots had been formed of materials brought to the spot by the canals which run through the ground.—*Continental Paper.*

Poultry and Eggs.—Fowls like the warm southern aspect, where they can huddle together in the sun during the middle of the day. Provide them such a place and plenty of food, such as corn, cob-meal mixed with scalding water, or hot potatoes, with occasional feeds of the flesh of young calves, plucks of sheep, and constant access to pure water, gravel, old mortar, oyster or clam shells, and bones, all broken finely, and they will yield eggs in abundance through the cold weather.

Kicking Cows.—Cows sometimes move their feet from impatience or restlessness, and sometimes kick for the same reason. Any *invariable* and *prompt* infliction of a short, quick punishment, will soon cure them. They dislike to have their teats jerked, and if, whenever they kick or step, this infliction *always instantly follows*, they will soon cease. It is of the utmost importance that it be always uniformly severe, not irregular, and never but *once* performed for each repetition of the fault.—*Country Gentleman.*

Seed-time and Harvest—Every man is to himself what Plato calls the Great Year. He has his sowing time, and his growing time, his weeding, his irrigating, and his harvest. The principles and ideas he puts into his mind in youth lie there, it may be for many years, apparently unprolific. But nothing dies. There is there a process going on unseen, and by the touch of circumstance the man springs forth into strength, he knows not how, as if by a miracle. But after all, he only reaps as he had sown.—*Education of the people by J. A. St. John.*

Thoughts.—Horace Walpole once remarked,—"This world is a comedy to those who think, and a tragedy to those who feel."

Domestic Life in the Middle ages.—Rude were the manners then; man and wife ate off the same trencher; a few wooden handled knives, with blades of rugged iron, were a luxury for the great; candles unknown. A servant girl held a torch at supper; one, or at most two, mugs of coarse brown earthenware formed all the drinking apparatus in a house. Rich gen lemen wore clothes of unlined leather — Ordinary persons scarcely ever touched flesh meat. Noble mansions drunk little or no wine in summer—a little corn seemed wealth. Women had trivial marriage portions—even ladies dressed extremely plain. The chief part of a family's expense was what the males spent in arms and horses, none of which however, were either very good or very showy: and grandees had to lay out money on their lofty towers.—In Dante's comparatively polished times, ladies began to paint their cheeks by way of finery, going to the theatre—and to use less assiduity in spinning and plying their distaff. What is only a symptom of prosperity in large, is the sure sign of ruin in small states. So in Florence he might very well deplore what in London and Paris would be to praise or cause a smile. Wretchedly, indeed, plebeians hovelled; and if noble castles were cold, dark, and dreary every where; they were infinitely worse in Italy from the horrible modes of tortures, and characteristic cruelty, too frightful to dwell on. Few of the infamous structures built at the times treated of stand at present; yet their ruins disclose rueful corners.—*History of the Order of St. John of Jerusalem.*

It is with books as it is with women, where a certain plainness of manner and dressing is more engaging than that glare of paint and airs and apparel, which may dazzle the eye, but reaches not the affections.—*Hume.*

Alumina, or clay, makes a soil tough, tenacious, and impervious to water. Strictly speaking, clay is a silicate of alumina, though in common parlance we use them as synonymous. It rarely enters into the composition of vegetables, it being rather a base for the soil than a constituent for vegetation.

Mangold Wurzels.—Taking into account the liability of turnips and bagas to disease and to the attacks of insects, and the comparative freedom of the mangolds from both, it has been strongly recommended in England to substitute the latter for the former, wherever the soil and situation are favorable. The mangolds are decidedly preferable as food for milch cows.

Turkeys—*Benefit of a Cross with the Wild Stock.*—Mr. N. Call, of Allenstown, N. H., informs us that he has kept in his flock of turkies a wild male, and the result is that the young ones from him are from four to five pounds heavier at five months old, than his turkies formerly were, though kept precisely in the same way. Mr. C. could spare some of the half wild ones.—*Boston Cultivator.*

Rusty Oat Straw.—Rusty oat straw proves bad feed for horses. Several have died from eating it.

Knowledge.—I envy no man that knows more than myself, but pity them that know less.- *Sir T. Browne.*

Forethought.—If a man faints away, says Hull's *Journal of Health*, instead of yelling out like a savage, or running to him to lift him up, lay him at full length on his back on the floor, loosen the clothing, push the crowd away so as to allow the air to reach him, and let him alone. Dashing water over a person in a simple fainting fit, is a barbarity. The philosophy of a fainting fit is, the heart fails to send a proper supply of blood to the brain; if the person is erected that blood has to be thrown up hill; but if lying down it has to be projected horizontally, which requires less power, as is apparent at once to every thinking mind.

If a person swallows poison deliberately or by chance, instead of breaking out into multitudinous and incoherent exclamations, dispatch some one for the doctor; meanwhile run to the kitchen, get half a glass of water in anything that is handy, put into it a teaspoonful of salt and as much ground mustard, stir it in an instant, catch a firm hold of the persons nose, the mouth will soon fly open, then down with the mixture, and in a second or two up will come the poison. This will answer better in a larger number of cases than any other. If by this time the physician has not arrived, make the patient swallow the white of an egg, followed by a cup of strong coffee, because these nullify a larger number of poisons than any other accessible articles as antidotes for any poison that remains in the stomach.

If a limb or other part of the body be severely cut, and the blood comes out by spirts or jerks be in a hurry, or the man will be dead in five minutes; there is no time to talk or send for a physician; say nothing but out with your handkerchief, put it round the limb, tie the two ends together, put a stick through them, twist it round, tighter and tighter, until the blood ceases to flow. But stop, it does no good. Why? Because only a severed artery throws out blood in jets, and the arteries get their blood from the heart, hence to stop the flow the remedy must be applied between the heart and the wounded spot, in other words above the wound. If a vein had been severed, the blood would have flowed in a regular stream, and, on the other hand, the tie should be aplied below the wound from the heart; because the blood in the vein flows towards the heart, and there is no need of such great hurry.

The Rochester *Union* says:—One of our prominent millers informs us that a party has been purchasing flour for the Montreal market, and has taken about fifteen hundred barrels, to remain in store till the St. Lawrence opens, when it will be shipped to its destination. The same party, we are told, has gone to Ohio to make purchases on the same account.

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Manuring in the Hill for Corn.—The question of applying the usual domestic or barn manures to corn, in the hill at planting, or over the whole surface before that time, is one which we have not seen particularly discussed in our agricultural journals, though often mentioned as practiced, or *vice versa* in accounts of the culture of this grain. From observation on this point, we conclude it is more common in New Hampshire than elsewhere, where indeed it was learned from the aboriginal corn-growers. We have heretofore, from results in our own experience, recommended manuring in the hill, in addition to a good dressing over the whole field, as productive of an essential improvement in the crop—giving an earlier and stronger start, which advance it keeps through the whole period of growth.

Some experiments in corn growing, comparing hill manuring with its application over the whole surface, are given by Mr. Baker of Oak Hill, in a recent *N. E. Farmer*—and thinking it will interest, we condense the same for our readers. Five plots of an acre each, were planted the last of May. On the first, twenty loads of long manure were spread and plowed under eight inches deep. On the second, ten loads of fine barn-yard manure was spread on the surface after plowing, and thoroughly harrowed before marking. The third acre was manured in the hill—two quart of very fine stable manure to each. The fourth received in the hill one quart of compost—two parts muck, two parts hog manure, and one part each of lime and ashes. The fifth acre, for the purpose of comparison, received no manure. The kind of corn planted was the yellow smut or red blaze, the kernal of which is large and flat, and the ear good size. Making no account of the soft corn, it produced as follows: No. 1, 84 bushels of ears; No. 2, 90 bushels; No. 3, 99 bushels; No. 4, 95 bushels; No. 5, 68 bushels. From these results, he concludes that for present profit, manuring in the hill is the best, and decomposed barn manure harrowed in, produce more effect than green dung plowed under—at least on the first crop.

Most commercial manures, as guano, superphosphates, poudrette, etc., have been applied in the hill exclusively, so we have no means of comparison of the effect of the same broadcast. Of fertilizers of domestic production, hen manure has more generally been applied in the hill for corn than any other material. It is plentiful of a concentrated character, and readily prepared and applied, while there can be no question as as to the profit arising from its judicious use. As hinted before, this manure and others of like character, give the young shoots an early and vigorous start, and enable it the sooner to strengthen itself, by extending its roots to more distant stores of food.

The effect of manuring the hill exclusively, would seem to be less calculated to benefit the next crop than if applied over the whole ground, though the active or thoroughly decomposed character of the fertilizer thus used would leave little benefit to be expected the second year. But we leave the question with our readers, simply remarking that while we would commend plentiful broadcast manuring in all cases, we would also advise the application of some concentrated fertilizer in the hill, believing it will in all cases prove profitable by forwarding and increasing the crop. Indian corn cannot well be surfeited by high feeding—and above most grains, uses and repays a plentiful supply.—*Country Gentleman.*

The Fall wheat in the vicinity of Brantford, and in the townships of Beverly and Ancaster is said to be badly winter killed.—*Stratford Examiner.*

The present appearance of the crop is encouraging It is both healthy and strong. The prospect is good; but whether the promise which present appearances hold out is to be realised, is a question. There is nothing to guarantee us against rust, the wheat fly and the wheat midge. But rust is known to be occasioned in part by unseasonable sowing, for which there was no excuse last Fall, and is not likely to be any this Spring. And in proportion as the quantity of Spring wheat is increased, will the danger from the fly diminish; for that insect confines its depredations chiefly to Winter wheat. This accounts for the circumstance, unprecedented in Upper Canada, of Spring wheat having averaged a greater yield than Winter wheat last year. The result has been that a very large quantity of Spring wheat will be sown this year, and to that extent at least a moderate yield of wheat may be said to be guaranteed. As to the Winter wheat what the fly may do to it, no one can predict; but with a reasonable exemption from the attacks of this enemy there is every prospect that it will turn out well.—*Leader.*

# Editorial Notices, &c.

Transactions of the New York State Agricultural Society. Vol. XVII. 1857. Albany: 1858.

We are again indebted to the courtesy of B. P. Johnson, Esq., the able and indefatigable Secretary of the New York State Agricultural Society, for a copy of the Transactions of that important organization, which stands in a similar relation to the Agricultural Societies of this continent, as that of the old Highland Society, of Scotland, to those of the British Islands and dependencies. We always anticipate something new and substantial in the annual production of the New York State Society, and, as yet, we have never been disappointed. As the Society and Agriculture of the Empire State progress, which both have rapidly done of late years, so this annual exponent of their measure of progress keeps true to its duty, and fails not to record faithfully and suggestively, the principal elements of the onward movement. We have neither time nor space at present to enumerate even the chief papers and topics of information which this portly volume contains; such as those on the agriculture and agricultural schools of Europe, Dr. Fitch on insects infesting evergreen forest trees, and others of equally great value from the Transactions of British Societies. We shall hereafter refer more in detail to some of the subjects embraced in this valuable publication.

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Third Annual Report of the Maine Board of Agriculture, for 1858. Augusta. 1859.

We have received from the Secretary of the Board, S. L. Goodale, Esq., the Report and Transactions of the Board for 1858, which is a very interesting document, containing several articles to which we intend hereafter more fully to refer. The volume is highly creditable to the zeal and judgment of the Secretary, who besides superintending its preparations has himself largely contributed to its pages.

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American Stock Journal.

We have received three numbers of this useful and well-conducted periodical. It is the only American journal, we believe, exclusively devoted to the breeding and management of Live Stock, and judging from the numbers which have reached us, we anticipate for it a successful career. Such a work was much wanted. It is published monthly by D. C. Linsley, Editor and Proprietor, 140 Fulton Street, New York, at the low price of $1 per annum, in advance, and will form, at the end of the year, a handsome royal octavo volume, well-printed and illustrated, of about 400 pages.

THE

# Canadian Agriculturist,

AND

## JOURNAL OF THE BOARD OF AGRICULTURE

OF UPPER CANADA.

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## IMPORTANCE OF DEEP CULTIVATION.

There can be no question that the produce of most of our Canadian farms might be greatly increased by deeper ploughing and clean cultivation. Four or five inches may do very well for a few years after the land has been reclaimed from the primeval forest, with a surface rich in organic matter; but after a while such shallow cultivation produces a stationary, or rather a retrograding, condition of agriculture, and recourse must be had to the employment of the best methods of deepening the staple soil, that a greater range may be given to the roots of crops in search of food, and to allow moisture and air to penetrate the soil freely, laden with life-giving power. In order to accomplish this necessary object, the farmer must invoke the aid of mechanical science, and look to the modern implement maker to supply him with such tools and machines as will render tillage more thorough and cheap. What we want, more particularly in this country, are such efficient and economically working implements,—such as scarifiers and grubbers,—as will enable the farmer to clean and deeply pulverize the soil after harvest, and before our long and rigorous winters set in, that the land may be in the best mechanical condition for early working and sowing in the spring. There can be no question that the approval and practice of deeper tillage are gaining ground in our older settled districts. Soils thus prepared sustain healthier crops through the often long and severe droughts of our summers, enabling the plant to search wider and deeper in search of food. Intelligent agriculturists have not worked their teams in herculean ploughing and subsoiling of 15 or 20-inch furrows, in stiff clay soils, without spreading the fame of their results; practice has not toiled or science preached in vain; and at the present time, we believe that the most valued boon to the farmer would be the placing in his hands a power that could make trench-work and deep-stirring cheap and easy, instead of a costly and somewhat dreaded operation.—In the better cultivated districts of Britain, ploughs to work twelve inches deep are no longer deemed preposterous; and as we come nearer and nearer to the successful hauling of draught implements by steam power, the production and testing of the best heavy land-plough becomes a closer struggle between manufacturers, and a livelier subject of attention to the practical farmer.

There is no occupier who would not like to have his land in as fine tilth, and as clean, as a garden,—deeply worked, pulverized, and enriched; only (as he will tell you) he must raise and be able to market greengrocers' and fruiterers' produce, in order to make such perfect cultivation pay. As long as grain and roots and fodder are worth no more per acre than at present, there is a limit to the amount of tillage it will answer to bestow in growing them. Give him a power cheaper and stronger than that of horses, and still more than that of workmen,—a power that eats only when at work, never wearies, and will accomplish the tillage wholesale at the right time, instead of being obliged to plod on, bit after bit, often in unsuitable weather, and he will soon show what an augmentation of produce, and how many other advantages, follow a better and superior style of culture.

The increased yield of our grain crops by deeper ploughing and underground draining, where needed, would, if fairly calculated, appear to many absolutely incredible. The risks of injury by insects, rust, &c., would be reduced to a minimum, and the average produce probably doubled. Thousands of acres of our grain-producing land has never been cultivated four or five inches deep, beneath which is often to be found a foot of soil abounding in the necessary mineral and organic matter, constituting the food of plants, and which only requires to be broken up and exposed to the action of air and rains, to yield to the growing crop its abundance of hidden treasure. With regard to Indian Corn, it is stated upon good authority, that in the Western States, upon the deep rich soils of the prairies, with the present shallow and imperfect system of culture, the average yield is under 30 bushels per acre, whereas upon the poorer stony soils of the New England States, in consequence of deeper ploughing and more thorough working the land, double and treble that amount is frequently raised. Upon poor sandy subsoils, deeper ploughing should be proceeded with progressively, as the turning up at once a large quantity of such soil, without a heavy manuring, might be temporarily injurious. It is proper also to observe, that upon soils naturally wet, little benefit can be expected from deeper culture till the land is drained. Draining, indeed, is the first indispensable means of improvement on wet lands,—the foundation of all subsequent ameliorations, and should always *precede*, rather than follow, deep cultivation. In preparing land for spring grain, it will be found most advantageous not to plough generally less than seven or eight inches deep; and for root crops an additional depth of as many inches by the subsoil plough, with a liberal dressing of well decomposed manure, will be found the most remunerating.

## PREPARATION FOR ROOT CROPS.

As the live-stock of Canada has of late years been rapidly increasing in quantity, and, in most districts, improving in quality, the supply of a sufficient amount of suitable provender, becomes a question of great moment to every farmer; since the mixed system of husbandry, or the breeding of stock and the raising of grain, is the one universally prevailing in this country. The main object of the farmer is to produce the largest amount of grain, and sustain the greatest number of animals of the best quality that his farm will allow, without diminishing, but rather increasing, the natural and permanent productiveness of the soil.

With a view of increasing and improving the domesticated animals of the farm, it has been found requisite in the British Islands, whose soil and climate are so peculiarly adapted to the production of grass and a rich permanent pasturage, to cultivate the various kinds of root crops upon a scale of great magnitude.

And it is to the production of an ample supply of nutritious food of different varieties that we must mainly look for an explanation of the immense numbers of farm animals, and their superior excellence, which characterise the agriculture of Great Britain and Ireland. Previous to the introduction of the turnip, beet, carrot, &c., into field culture, both the amount and quality of live-stock were very different to the present state of things. The same reasons are equally applicable here. Neither our heavy crops, nor artificial or permanent pastures are of such a character as to support large flocks and herds, without the aid of vegetables cultivated in the best manner and on a commensurate scale. Our farmers are beginning to understand that it must be a losing business to go to the trouble and expense of importing or breeding improved stock, without providing for them a sufficient amount of food of the best quality; and experience has determined that a mixture, consisting of hay, roots and grain, is the one by far best adapted to meet the increasing demands of this new and improved order of things.

The season has now arrived when active preparations must be made to secure these objects. It is generally to be recommended to plough land intended for root crops, deeply in the fall, and to prevent the stagnation of water upon the surface either by underdraining or surface furrows, the former being incomparably the best. Give the land a thorough working as early in the spring as its state will admit, always bearing in mind that for fine seeds especially, the ground should never be touched while in a wet state; a rule which applies with increased force to all kinds of heavy and retentive soils. The thorough *mechanical* preparation of the land for root crops, or indeed for all others, is a matter of primary importance, affecting the growth and amount of the crop in a variety of ways.

The next consideration is the adaptation of the soil to a special object in what may be termed a *chemical* point of view; or in other words the supplying of crops with the necessary kind and amount of food which they require. This brings us at once to the all-important question of manures. And here it may be observed that it will only end in loss and disappointment to attempt the raising of roots, for the purpose of cattle feeding, without first bringing the soil into a suitable condition, first by deep and clean cultivation; and second, by the application of manures, in kind and quantity adapted to the requirements of the crop, and the actual condition of the soil. Farm yard dung, unless thoroughly decomposed, which state generally involves a great loss of manuring constituents, should be evenly spread over the surface and well incorporated with the soil. Bone-dust, guano, and the fine artificial manures, are generally best applied in the drills with the seed, taking care that guano, for instance, does not come into direct contact with the seed, as its germination might thereby be weakened or entirely prevented.

## REPORTS OF AGRICULTURAL SOCIETIES.

A correspondent recently called our attention to the fact that in the Abstract, published in the Transactions, of the County and Township Agricultural Society Reports, during the year 1853, the amount of subscriptions received in deposit by the County Societies from the townships, in many cases does not correspond with the aggregate amount subscribed by the Township Societies, as taken in detail from the abstract of the reports of the latter, and further that the amount of Government grant to the several townships in a county is frequently not at all in proportion to the amount of their relative subscriptions. A few words will explain this apparent discrepancy. It arises simply from the fact that a portion, more or less, of the subscriptions of each Township Society, is collected after the

deposit is made with the County Society, which must be done on the 1st of May, and as the amounts collected by the several societies in a county after that date vary greatly in proportion, it follows that the amount of the public grant distributed by the County Society to the various townships is apparently not in proportion to their subscriptions. As it is an object to make the abstract as brief as possible, it has not been thought necessary to state in each case the amount subscribed before and after the 1st May—indeed the reports themselves do not in many cases distinctly show—but a general note in a former issue alluded to the circumstance of the subscriptions being increased after that date as explaining what might seem to be discrepancies. Our correspondent further observes that the sum of the portions of the Government grant received by the several townships in a county, does not apparently correspond in amount with the three-fifths of the entire grant professedly distributed amongst them by the County Society. There are occasionally slight differences, from some cause or other, and probably sometimes from inaccuracy, of a few pence or shillings in the amount stated by the County Society to have been paid to a township, and the amount stated by the township to have been received. The abstract of each report is founded upon the report itself, without reference to how it may agree with other documents, as the endeavoring to reconcile all the reports from a county exactly with each other, would require a great deal of time and labor, and in many cases could not possibly be done from the documents furnished, without the alteration of figures, and is therefore not attempted. It follows that there is sometimes apparently a trifling difference between the amounts stated to be received by the townships and the amount stated to be divided amongst them. Where the amount is considerable, it is in most cases owing to the fact of one or other of the townships having failed to make a report at all. So far as we have been able to observe, we believe that the rate of apportionment by the County to the Township Societies is in nearly every instance quite correct, both in respect to the whole amount apportioned, and the relative amount paid to each society. But, while offering this explanation, we must at the same time admit, that while many of the documents received from Societies are altogether unexceptionable, others are very incomplete, if not inaccurate; some of them so much so, as to make it very difficult to make an intelligible abstract from them, and we would beg to impress upon all the officers of Societies the necessity of having their reports drawn up in future as correctly and completely as possible. With the view of inducing some improvement in this respect, and also of obtaining by this means information of a useful character for publication, the Board of Agriculture at a recent meeting agreed to offer a set of premiums of small amount for the best reports from County and Township Societies, the particulars of which will be given in a future issue.

## Correspondence.

### TOWNSHIP OF HOPE FARMERS' CLUB.

Hamilton Gardens, March 26, 1859.

Messrs. Editors,—I enclose you a part of the *Port Hope Guide*, containing a report of a meeting of a newly organized Township Club in Hope. The paper was read by a young farmer of that Township, and a very interesting discussion took place on the subject before them. The editor of the *Guide* was there, but as there was not an understanding that the debate was to be published, he did not take any notes, and only gives a brief synopsis of what was said. They resolved however, that when they met again, Mr. Crew should report the speeches and publish them in the *Guide*.

I thought you would hardly be likely to see the paper, and as I know you are anxious

to see all that transpires in the Province in this way, I take the liberty to send it to you; and as you have formerly been in the habit of publishing such reports in the *Agriculturist*, I thought probably you might do so with this.

I was very much pleased with the discussion myself, and from the amount of information displayed by several of the members of the Club, I think they will make it a very interesting affair.

I remain, gentlemen,

Yours truly,

JOHN WADE.

[We are obliged to Mr. Wade for his friendly attention, and shall always feel happy in being informed of the proceedings of the Township of Hope Farmers' Club, which promises to be highly successful; and it is much to be desired that others should follow the example. As the principal object which the *Agriculturist* seeks to obtain, is the recording and diffusing agricultural information for the benefit of the Province at large, the reports of the proceedings of Farmers' Clubs, ploughing matches, &c., will be always acceptable. We must mainly rely on the officers of societies and leading individuals, in all sections of the Province, to keep us posted up in these matters. We shall be happy to hear *direct* from Mr. J. E. Champion, whose paper is highly interesting and suggestive.—EDITOR.]

### *From the Port Hope Guide.*

We stated on a former occasion that the farmers of the Township of Hope had organized a club for the discussion of questions pertaining to farming. The place of meeting is in the Alma Division Sons of Temperance Room, Guide Board. We were present at a meeting of the Club on Monday, and were much pleased with the spirited manner in which the discussions were sustained.

The President, Nathan Choate, Esq., was in the chair, and among others in the room we noticed Messrs. J. E. and Francis Champion, W. F. and J. K. Allen, J. Foott, J. and T. Parker, Oke, Vanstone, Martin, Grey, J. Cann, C. Harris, and J. Wade, Esq., and son, of Hamilton.

The question for discussion was the Preparation of Seed Wheat for Sowing. After a few introductory remarks, the chairman called upon Mr. James E. Champion to read an essay which he had prepared on the subject. The essay will be found below, and we would warmly recommend it to the farmers of this county. Mr. Champion is a young man of considerable ability; and by making proper use of his spare time has acquired a large fund of general as well as agricultural knowledge. He is industrious and energetic, and these qualities, united with his knowledge of agricultural chemistry, will ensure him success as a farmer.

The great sin of young men brought up on farms in these days is an admiration of, or a longing after, town or city life. As soon as boys reach the age of 15 or 18 years, they frequently become discontented with a farmer's occupation; they wish to enter into some lighter, and, as they think, more gentlemanly employment. They must be lawyers, or doctors, or surveyors, or engineers, or "preachers," or something of that sort. It is becoming much too fashionable to decry the farm and farm life; and we are glad to meet occasionally a young man like Mr. Champion, who evidently thinks the cultivation of the soil is an honorable as it is an independent occupation, and who strives by study to fit himself for the proper discharge of the duties of his station.

After the reading of the essay was concluded, Mr. John Foott, President East Durham Agricultural Society, spoke briefly. He advocated the preparation of seed wheat with vitriol, and explained the manner of its application.

Mr. W. F. Allen had prepared his seed with lime and with other preparations, and although he had sown the prepared and the unprepared wheat in the same field he never saw any difference in the crops. One was as free from smut as the other.

Mr. John Cann had tried various ways of preparing seed, but was of the opinion that washing in salt water or brine was the most effectual method he had ever tested. The wheat to be placed in a large barrel or hogshead covered with the brine, and stirred vigorously with a paddle. By this method the germ of the smut that lodged in the "furze end" of the berry was killed.

Mr. C. Harris, had tried many experiments, but was of opinion that seed was as well without any preparation.

Mr. Vanstone took much the same ground as Mr. Harris.

Mr. F. Champion thought that washing seed in a running stream was a good preparation, as all the smut, &c., it might contain would be carried away by the current.

At the close, John Wade, Esq., said that he had been requested to invite the Township of Hope to join Hamilton in getting up a ploughing match, to come off some time in April. No decision was come to upon the matter. Will the young farmers of Hope decline to meet the young men of Hamilton in a friendly strife of this description?

## PREPARATION OF SEED, AND TIME OF SOWING.

Mr. President and Gentlemen,—The preparation of seed is of vast importance to the farmer; because it is a universal law of nature "*that like begets like*," a law equally as true in the vegetable as the animal kingdom. Such being the case, how essential it is that we select good seed. Every farmer should reserve a part of his wheat, which he intends for seed, and let it fully ripen before he cuts it; by doing so the grain is matured, as nature evidently intended it should be; this is the first important thing in good husbandry, and one, which I think is sadly neglected in the hurry and bustle of our harvests. I would therefore recommend, that, what is designed for sowing the next year remain uncut for a few days later than the rest, or until quite ripe. Great care should be taken that we sow nothing but *wheat* when *that* is the crop we wish to sow. A slovenly farmer will often sow grain which is not properly cleaned from the seeds of the various noxious weeds which infested the crop the previous year; thereby rendering his land a fit nursery for weeds of all descriptions, and the old adage says, "*one year's seeding makes seven year's weeding*," which clearly shows we cannot be too particular in cleaning our seed. We should also endeavor to get the largest and best formed grain for sowing. I know there are a number of farmers who maintain that there is no necessity for doing so; because, say they, "the smaller size will do equally as well, and requires less by measure to the acre." Yet, perhaps those men are very judicious in the selection of cattle to breed from; choosing only those that are perfect in symmetry and of a good size; but if we take a retrospective view of both we shall find there has been more improvement in the vegetable, than the animal kingdom. Great, indeed, has been the improvement in the latter, which our improved breeds will fully testify. But from the most authentic sources our invaluable and staple production, for which our country is celebrated, was once a species of grass—the indigenous production of the shores of the Mediterranean sea, and known by the botanical name *Aegilops ovata*. Now, if by judicious selection of seed, and a proper treatment of the plant, it has been brought to its present state, would it not be wisdom in us to see it does not degenerate; and one preventative of its degeneracy is the selection of the largest and best, and sowing none but what nature has matured. We should change our seed as often as we conveniently could, and always from a light sandy, or gravelly loom, to a heavier one; such a change is generally a remunerative one to the farmer. And experience also demonstrates that every change from a cold climate to a warmer one gives a greater increase in the next crop than seed equally as good raised in the same land: we should therefore import from a higher latitude at least once in seven years, and oftener if convenient. Although it may not be in the power of all to import from a distance, yet all of us may change from a sandy soil to a clayey one.

The principal things with which we have to contend in the cultivation of wheat are smut, rust and midge.

In the preparation of seed we may prevent smut by the application of sulphate of copper. Most varieties of wheat are subject to smut, and I know of but one kind which is entirely free from it—the Fyfe wheat. I cannot speak from a practical knowledge of any other variety.

Almost every farmer has his own specific remedy for smut. Washing the grain previous to sowing, in water, weak ley, brine or urine, and drying it with slacked lime is highly recommended by those who have tried it. I never used any of those solutions, and therefore can speak of their efficacy only from the report of others.

We always use a solution of sulphate of copper, and never knew it to fail in one instance when properly tried.

After thoroughly cleaning the barn floor and the wheat we intend sowing, we wet the wheat on the floor with a solution of sulphate of copper dissolved in urine or brine;

turn it over a few times, that all may be made damp—let it remain so a short time; then mix lime enough with it to dry it,—after which it is ready for being sown. The reason for washing the seed wheat is to destroy the sporules of smut which adhere to the grains of wheat, and as each sporule is capable of producing its kind by coming in contact with the seed we sow, unless washed off or destroyed by some chemical agency, the crop is infested by those dark dwarfish ears, which not only mar the beauty of the growing grain, but leave its poisonous influence to lessen the value when taken to market.

In the year 1854, we sowed a field of 20 acres, with wheat prepared according to the above, except a ridge on one side of the field.

At harvest there was not a head of smut to be found in the field, except in the ridge which was sown unprepared; but in this there was 7 per cent of smut. In the preparation of seed, I know of no preventative to rust, and according to the nature of the disease, I think there can be no remedy applied at the time of sowing. Rust is a parasitic plant, that is, one which lives on, and grows from, other plants. Rust, when viewed under the microscope, presents an appearance as perfect in its form, as any other plant of the same genera.

Although it is out of order, I hope you will pardon me for making a remark or two on rust and its preventative, which I hope may be adopted by all who have it in their power. The cause of rust is a superabundance of humidity in the land, and the presence of too much ammonia. Although ammonia is the most active agent in manure, and one which produces a luxuriant vegetation, yet for a wheat crop it has a tendency of producing too much straw, and, therefore, should be sparingly used on black looking soils.

Underdraining, then, is the only reliable remedy I know of for rust, because it removes the cause of the disease, and must consequently remove the effect. In the cultivation of oats and peas, due regard should be paid to cleanliness from what might produce its species, and the remarks I made at the commencement about *matured* seed, and best quality, are equally true respecting oats and peas.

If we sow *good* seed we may reasonably expect *good* in return; but, if bad, the result *must* be different. Wheat, oats and peas, are exotic plants, and require an extra effort to prevent their degeneracy. *Care* and *judicious selection* have brought them to their present state, and *care* and *selection* must be exercised in order to retain their present perfection.

I come now to the second part of my subject, viz.: "The time of sowing." At present it is almost impossible to lay down any definite rules respecting it, because there will necessarily be so many exceptions, owing to the condition of the soil, its quality, and variety of wheat and its enemies.

If it was not for the midge, I would invariably recommend early sowing. Some of the advantages of early sowing are, a full development of the grain on account of a longer period of growth, partial immunity from rust, and likely an earlier harvest, the latter, previous to the ravages of the midge, was synonymous to a good one; but more especially because it is in conformity with its nature.

The club wheat is an excellent variety, and one which has been of great benefit to the Canadian farmer. When first introduced it was very prolific, and I believe still holds a high position on all land naturally adapted to the growth of wheat, such as porous soils and those clayey ones from which the water freely runs off after heavy rains. This variety should be sown early; at present it must contend either with the rust or the midge,—"of two evils choose the least;" sow early and avoid the rust, for experience has taught us it is more destructive in its nature, more baneful in its effects. But we have another variety of wheat which has entirely revolutionized our wheat-growing, and ushered in a new era to those farmers whose lands are located on the "black alluvial deposit."

Land, which a few years ago would raise no wheat, but what would be shrunk and only fit for "still grain," now produces a good crop of merchantable wheat, and is highly recommended by millers and bakers. I refer to the Fife Wheat; and, as was stated in the September No. of the *Agriculturist*, 1856, by Mr. Wade of Hamilton, "to know that we can be sure of a crop of wheat sown as late as the 10th of June, and to fill and ripen without a speck of rust, and yield from 20 to 30 bushels per acre, *is surely a consideration.*"

Those farmers who are in the habit of raising Fyfe Wheat know full well, by sowing late, they can escape the midge.

I find about the 20th of May a very good time, in this neighborhood, to sow.

In 1855 we sowed very early, when the crop was nearly all destroyed.

In 1856 we sowed our wheat the 12th of May,—a good deal was destroyed by the midge.

In 1857 we sowed the 20th of May,—not very much affected. And last year we sowed on the 21st of May, when it was still less affected; but one reason, I think, why it withstood the attack last year, was owing to the extreme lateness of the season, and by the time the wheat was in blossom, and which is the only time the midge can deposit its eggs, the season had passed with the fly for the propagation of its species.

Early sown oats are always the best in quality and most in quantity; but later sowing gives more straw. Last year late sown oats were rusted, and those elements of nutrition, which should have formed the grain, were absorbed by the rust, and instead of producing developed grain, produced nothing but straw and the parasitic plant. We might as well expect perfect fruit from an apple tree girdled in August, as expect good grain from straw whose nutriment has been absorbed by rust.

I think if more attention were paid to the cultivation of peas, it would be a great benefit to our land as well as our pockets, because a crop of peas taken from the land does not rob it of its mineral constituents, essential to the growth of grain, as some other crops do. It is a law of the vegetable kingdom, "that all broad or large-leafed grains, plants, or trees, require less food from the earth, than the smaller leafed ones; because the large leaf has a greater surface exposed to the atmosphere, and consequently absorbs more carbonic acid and ammonia, the principal food of the vegetable kingdom; hence the advantage of sowing peas.

Formerly, I believe, early sown peas were more liable to be worm eaten, than later ones; this last year or so, there has not been much complaint, and I think early sowing might be resumed with profit, as they generally are a better sample, and therefore command a higher price in market.

To conclude, I would recommend a high cultivation and thick sowing. Aim at the cultivation of a less number of acres of wheat, and a larger yield. Above all, if your soils are deficient in lime, phosphoric acid, or magnesia, do not attempt to cultivate wheat until it is supplied in the shape of a manure, for however rich your land may be in other ingredients, if it is lacking in any of these, your crop will be deficient, and what is produced will be of little benefit as food, which is our aim in the cultivation of wheat.

JAS. E. CHAMPION.

Hope, March 21st, 1859.

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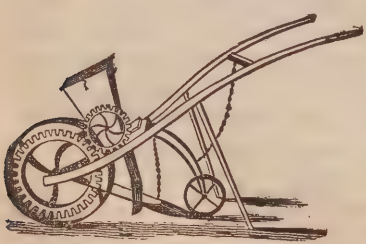
## SEED DRILL.

*To the Editor of the Canadian Agriculturist.*

Sir,—I beg through your excellent paper to call the attention of your readers, and the farmers of Canada generally, to the Seed Drill, of which I send the cut for insertion.



Having noted the increasing attention given of late years to the growth of roots, it has been my study to produce a drill which would be generally adapted to the sowing of every description of seeds. I finally decided on the one, of which the annexed cut is a representation, as the most universally applicable.

The drill is not unknown to practical farmers here and in the United States, although I have made some important additions, and I believe the first attempt at domestic manufacture of it.

I need not enter into a minute description of the machine. Suffice it to say that the large wheel in front rolls the ground, and gives motion to the smaller cog wheel, which, turning a brush inside the box, ejects the seed. The seed box is provided with a set

of slides with perforations adapted to the size of different seeds. The coulter or pipe makes the opening and deposits the seed, a metal drag covers it, and the small roller immediately behind completes the process. The drill is compact, and adapted for sowing either in drills or level rows, a guage being provided to make the succeeding rows.

Finally, the machine is durable, having nothing but the simplest gearing. It is adapted to sowing, with equal success, every variety of field or garden seeds.

Taking into consideration its cheapness, durability, and practical usefulness, I believe the drill is a real desideratum to the country, and I have great pleasure in submitting it to the verdict of an intelligent community.

Yours faithfully,

JAMES GREIG.

Pickering, March 1859.

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## VETERINARY SCHOOL.

*To the Editor of the Agriculturist.*

TORONTO, March 20th, 1859.

SIR,—I am confident that the farmers of Canada will hail with satisfaction the prospect of the establishment, at no very distant period, of a Veterinary School in the Province.

In accordance with instructions from the Board of Agriculture, I have addressed a letter of enquiry to my old instructor, Professor Dick, of Edinburgh, which, I am sure, will receive his early and best attention, and that by the month of May I shall be prepared to submit to the Board a satisfactory reply.

Many reasons concur in urging upon us the immediate establishment of a scientific and practical school of Veterinary instruction, as an appendage to our Chair of Agriculture. No branch of agriculture has been so sadly neglected hitherto, as the important department of live stock, and I believe it to be a source of emolument well meriting attention. We are not to expect that every farmer will boast of a thoroughbred herd book stock, but it is always within his reach to command the services of a *pure male* of the *first class*, and I believe he will be a good deal astonished at the early improvement which may be thus effected through the common cows of the country, *judiciously selected.*

Few Townships, I believe, in Canada, will have any difficulty in providing a sober, intelligent, steady young man, who, (with very moderate pecuniary aid,) may attend the Veterinary School, finding employment in the forge, and who will ultimately, having obtained his diploma, return to settle in his own home, *thoroughly instructed in horse shoeing and in the treatment of all descriptions of live stock, whether under accident or disease.* There can be no doubt that the facility of obtaining trustworthy aid and advice will contribute most essentially to promote attention to live stock, and although every farmer cannot be expected to possess *a herd of thorough bred* cattle, I will venture to assure him, that he will be not a little surprized at the size and early maturity of the produce of his *common cows* which have been served by a *first class thorough bred bull*, if he inclines to adopt the Short-horn cross.

I beg to apologize for this intrusion, but I believe the communication will be acceptable to most of your readers.

I remain, Sir,

Your obedient servant,

ADAM FERGUSSON.

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## THE POTATO ROT.

*To the Editor of the Agriculturist.*

MR. EDITOR,—The undersigned begs most respectfully to draw the attention of farmers, gardeners, and others whom it may concern, to the important fact that, after seven years experience and study, he has found a complete cure for the disease commonly known as the potato rot.

It is a well known fact, that the above disease commences in the top of the potato

vines and in a few days works into the roots, which causes the aforesaid rot, and common sense tells us, that if we can find a preventive to keep the disease from attacking the tops of the vines the potatoes at the root will be comparatively safe from its effects, and to find this preventive was my daily study.

After trying various experiments from time to time, with no success, I at last hit upon the method of which this is an explanation. and I found that by treating the potatos as herein mentioned the disease did not attack them.

Now, in proof of the arguments I hold forth, I beg to say that for several years I have sown the preventive on some of the potatoes in my field and left some of them in their natural state, and the result was that those over which I had sown the preventative were perfectly sound and dry, while the others of them, over which I had not sown the preventive, were rotten and diseased.

The preventative, of which I speak, is made as follows:—

Take 4 bushels of dry common house ashes,
2 bushels of roach lime, (slackened),
6 pounds of sulphur:

Mix and sow over the potatoes, before the dew rises in the morning, to an acre and one half of land.

This preventive must be sown between the 19th and 22nd of July, and for late potatoes from the 19th to the 23rd of August, and if attended to you will find it a perfect preventive.

I understand gardening and raising vegetables of all kinds, and I should have communicated the above to you before, but I wanted to make sure, before it was made public, that it would give satisfaction.

I beg of you to lay this communication before the Board of Agriculture as soon as possible, and if they see fit they can make it public, and if not I shall be satisfied, and if after experimenting on it they find it good they can make me what amends they see fit, as I have spent considerable time in working it out to satisfaction.

I remain, Sir,

Yours, &c.,

SAMUEL S. EDMONSON.

Unionville, March 14th, 1859.

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## BUCKWHEAT.

*To the Editor of the Canadian Agriculturist.*

Being desirous of growing a few acres of Buckwheat this year, I would feel obliged, if you, or some of your readers would answer the following questions, together with any hints which might prove useful, through the *Agriculturist.*

1st. Kind of land best adapted to its growth. 2nd. Quantity of seed per acre. 3rd. Productiveness. 4th. Time of sowing.

As it is a crop scarcely ever grown in this neighborhood, I have no doubt that an answer will prove acceptable to many of your readers, as well as

Your obedient Servant,

H.

Peterboro', March, 1859.

We subjoin a few remarks in reference to our Correspondent's enquiries, and shall be happy to receive communications on the subject by such of our readers as have had practical experience in the matter.

The soils best adapted to the culture of Buckwheat are such as are light and dry. Upon wet land, however rich, it will not generally do well, and heavy crops may frequently be got from light sandy lands, on which wheat and other grain seldom succeeds. The application of much rich manure is not to be recommended; its tendency would be to promote a luxuriant growth of straw,

rather than to increase the quantity and improve the quality of the seed. Buck wheat is a plant particularly suited to the lighter and poorer classes of soils When sown broadcast, which is the usual practice, three or four pecks of seed per acre will be found ample; and if drilled, considerably less will be sufficient. The crop is very various in amount; from twenty to thirty bushels of seed per acre, may be considered a liberal produce, but larger yields are sometimes obtained. Much will of course depend upon the character of the season and soil, and the mode of treatment. The time of sowing must, to some extent, be regulated by circumstances. The plant is exceedingly tender, and the seed should be fully ripened before the approach of the least frost. From the beginning to the middle of July in this latitude is a good time for sowing; the operation, however, may sometimes be deferred to a later period, particularly when the raising of seed is not an object, and the plant is to be ploughed under as green manure for fall wheat.

## SHORT RAMBLES IN KENT AND SUSSEX.

(*Continued from page* 57.)

The country around Hastings is very picturesque, and abounds in material of great historical interest. The surface is beautifully undulating, and diversified by woods, corn fields, hop gardens, and green pastures; constituting a landscape characteristically English. Brighton is a much larger place, but the surrounding country is in point of richness and beauty much inferior to that of Hastings. The former is situated on the chalk formation, belonging to the range denominated the South Downs, so distinguished for the excellent and well known breed of sheep, which go by the same name. The specimens of this breed which I have seen in Canada are inferior both in fleece and carcase to the ordinary flocks in this country. The Ellmans, near Lewes, have for generations been distinguished breeders of this variety, and the Duke of Richmond, whose princely residence and estates lie further west in this county, has of late became a successful rival of the celebrated Jonas Webb, of Cambridgeshire. The prevailing rock for many miles round Hastings is a ferruginous sandstone, in which large quantities of iron ore of excellent quality were formerly worked; the remains of some of the old furnaces are yet to be seen. As wood became scarce, the iron manufacture gradually left this part of the country, and became established in Staffordshire, and other places, where coal abounds.

Hastings is one of the principal cinque ports, and its history goes back into the mythical ages of antiquity. Vestiges of a Roman encampment are discoverable on the hill eastward of the town, which appears to have been strongly fortified in those days. The remains of a large and very ancient castle on the western hill, are still carefully preserved: portions of the walls and a tower are yet standing, and the interior is converted into a pleasure garden, the view from this eminence, some five hundred feet perpendicularly above the sea, whose waves wash its base. A few miles to the west lies the rich grazing tract of Pevensey level, agriculturally distinguished for the large numbers of sheep and cattle which are fattened there, and in civil history for having been the landing place of William the Conqueror. Pevensey Castle is a noble old ruin; the date of its erection is unknown, though from the number of Roman bricks employed in it, most antiquarians are agreed to assign it to the Roman period. Its form is circular, enclosing seven acres, and it is supposed to be one of the greatest and most entire specimens of Roman building in Great Britain. It was in this castle Bishop Bayonne and his forces sustained a six weeks' siege, but for want of provisions were obliged to surrender to William Rufus. How suggestive and full of meaning are these monumental remains of old England!

On leaving the coast and rich alluvion of Pevensey, the pedestrian reaches the higher grounds, which are much diversified, and varying considerably in the productiveness of

the soil. After getting a few miles inland the country becomes more wooded, with smaller fields and high hedges. The villages are small and very rustic, the parish churches especially form most picturesque objects. Indeed an English rural landscape is essentially wanting without its appropriate church tower or spire. At length I reached Battle, a considerable market town about eight miles from Hastings, and celebrated in English history as the place where the fate of the great battle was decided between William of Normandy and King Harold, A. D. 1066. To commemorate this event, constituting a most important epoch in England's history, the Conqueror erected the year after the battle, where the action had raged the fiercest, the well known Abbey; the high altar, it is said, standing on the very spot where the dead body of Harold was found. It was dedicated to St. Martin, and filled with Benedictine Monks, from the Abbey of Marmontier in Normandy. Although portions of the Abbey have crumbled into ruins, and their foundations only can be traced, yet there are others in a good state of repair, forming a capacious family mansion, inhabited by the proprietor, Sir Godfrey Webster, Bt. Its ancient magnificence appears by the ruins of the cloisters, and in and by the largeness of the hall, kitchen, and gate house, the last being in an excellent state of preservation, and makes a very imposing appearance as you enter the Abbey from the town. The entire edifice is upwards of a mile in circumference, and the thick covering of the clustering ivy, over its ancient walls and turrets, gives it an air of solemn and impressive grandeur.

In the adjoining church of the Abbey, it is said upon reliable authority, the Conqueror offered up his sword and royal robe, which he wore on the day of his coronation. The monks kept them till their suppression, and used to shew them as great curiosities; likewise a table of the Norman gentry, who came into England with the Conqueror and shared with him the spoils. Below the Abbey, gently sloping southwards, I observed some pretty good pasture land, with some very fair specimens of Sussex cattle grazing, a hardy and useful breed. A low portion of these meadows, now forming a part of the town, still goes by the name of "the lake," formerly indeed, "bloody lake"; being almost included within the Abbey walls, the precise spot where the greatest effusion of blood took place. Further down are the extensive mills of the celebrated Lawrence gunpowder, in which a large business is still carried on. The soil in this district I consider to be generally second rate, and the farming similar; oxen are extensively employed in the ordinary work of the farm. There are but few of the improved modern breeds of cattle to be seen. In some of the neighboring parishes to the north, I observed belts of excellent soil, particularly productive in hops, a ton and upwards per acre, not being an uncommon crop. This neighborhood is still well wooded to the north, and at the time the great battle was fought, the surrounding country, into which the vanquished Britons sought a refuge from the enemy, was as dense a forest as any in Canada.

About three or four miles from Battle, is the noble seat of the Earl of Ashburnham, with its beautiful grounds and ancient church close to the mansion. In this church, it is said, were preserved in a chest, the shirt and drawers which King Charles had on when he was beheaded; likewise a watch which he gave to Mr. Ashburnham; and the sheet which was thrown over him after his execution; the touch of which was supposed to have the wonderful efficacy of curing the disease known as the King's evil. People in those days were imbued with the spirit of a large and trusting faith,—some remains of which can be traced in many of the nooks and corners of the more secluded portions of England at the present day. Among some of the farmers of the old school, there yet lingers the belief that the relative positions of the heavenly bodies,—particularly the moon,—have a decided influence on the results of farm operations, cattle, &c.

Upon the Iron or Hastings sands formation the soils are very various—passing through every gradation, from the stiffest clay to poor, and almost blowing sands. The greatest improvement ever attempted in the agriculture of this district has been of late years pretty extensively carried out, as I mentioned before, viz: underdraining, and enlarging the fields, straightening the fences, &c. To such an extent has the removal of hedges and timber trees been carried of late on some estates, as to excite the fears of the lovers of the picturesque. Much however has yet to be done in this direction, before the full agricultural capabilities of the district can be developed; and sufficient woods, single trees, and green hedges will be left to maintain the richly varied attractions of the scenery of the Wealden.

From Battle I had a very pleasant walk through the rural parishes of Brede, Ewhurst, Bodiham and Sandhurst, in all of which the soil is very various,—passing through the different gradations from a stiff clay to a light sand,—loams, however, of good quality

are extensively distributed. The surface is beautifully undulating, or as it is termed on your side the Atlantic, rolling; and the agriculture seems to be clean and thorough; particularly hop-culture, which is quite equal to that of ordinary kitchen gardens. Indeed I thought in some instances that the farmers cultivated their hop-fields more highly and expensively than they did their gardens. In the numerous valleys of the district, through each of which meanders a stream of more or less capacity, there is always to be found a rich alluvium. generally in permanent pasture, and sustaining large numbers of sheep and cattle. Many of these lands have been in pasture from time immemorial, and unlike such lands in Canada, the grass becomes thicker and more nutritious as they get older; hence the reluctance felt by most landlords to allow the old rich pastures to be broken up, and used for the purposes of arable husbandry, as it takes many years to get them down again into as good grass as before. In these pastures, which are thick and soft, there are frequently to be found a dozen or more different species of permanent grasses. Some coming early and flowering in spring, while others will ripen in succession through the summer and autumn, so that an English pasture has always different kinds of grasses in perfection, which, with its moist and equable climate, renders raising stock so marked a characteristic of British agriculture, and so valuable a source of national wealth. I found, however, from conversation with many intelligent farmers, that only the best pastures were profitable to keep permanently, and that those of second rate quality on poorer or more ungenial soils, it would pay better to subject to the alternate husbandry; when grain is high the temptation to break up old pastures is very great, and it is no doubt profitable on such as are inferior. I passed the fine old ruin of Bodiham Castle, situated on the banks of the Rother, in a valley of surpassing beauty and fertility. The castle, which is surrounded by a moat, with a drawbridge on the north side, is kept in a good state of repair, and in the summer time is a point of considerable attraction to visitors of Hastings, and pic-nic parties from the surrounding country.

There are many nooks and corners of great interest and beauty which I have visited in the adjoining County of Kent, but want of space forbids particularizing. With the country around Maidstone I was highly delighted; anything approaching to the richness of the scenery and the garden-like cultivation I never saw before. This district has for centuries been designated "the garden of Kent," as Kent itself has been called "the garden of England. The soil is a limestone rock, belonging to the geological formation of the green sand; so called from the greenish particles of silica often observed in it. It is excel ently adapted to agricultural purposes generally, and to the growth of all kinds of fruit suited to the climate. In looking over a few square miles around Maidstone, you may see thousands of acres in hops and fruit; the latter including apples, pears and cherries, with large quantities of gooseberries, currants, &c., which are of the finest quality. The filbert-nut is raised here in large quantities and of the best quality. It is cultivated in orchards in which are other kinds of fruit, the tree is not allowed to grow more than five or six feet high, the shoots being annually cut back and the centre kept clear, the whole assuming a sort of inverted bell-shape, which allows light and air freely to reach the clustering fruit. Some of this fruit-land will rent for forty or fifty pounds an acre per annum. In different parts of this country, I observed that fruit trees are sometimes planted with hops; so that when the latter are taken up, in the course of ten or a dozen years, the fruit trees will have attained considerable size and will be coming into full bearing.

By the way I may mention that of the beautiful and extensive views which I have yet witnessed in old England, that on the top of Bluebell Hill, on the southern escarpment of the chalk ridge, between Maidstone and Chatham, really surpasses all. In one direction the whole extent of country bounded by the Nore and the Isle of Sheppy, with an extensive sea view, was before me, whilst from east to west could be traced the semi-circular direction of the chalk range, from Shakspear's cliff near Dover, to the bold promontory of Beechy Head in the vicinity of Brighton, thus bringing into one view the interesting valley of the Wealden, in which the late Dr. Mantere, and others, made such discoveries in fossil remains, as to throw a flood of light on the geological history of this singular formation. From Bluebell Hill there are unbroken views of land and sea, —with the Midway gracefully winding through the valley,—of fifty or sixty miles.

There is a very singular monument near this spot, called *Kit's Coty House*, consisting of four great stones, taken from the formation below, that is the green sand, or as it is provincially designated, Kentish Rag-stone. Two of them are firmly set in the ground, partly upright, forming two sides, and a third stands in the middle, the fourth,

which is the largest, is laid transversely over, and serves for a covering. The two side stones are about seven feet high, and are computed to weigh upwards of eight tons, while the top one, which is twelve feet long and upwards of nine feet wide weighs nearly eleven tons. These stones are quite rough, having no marks of workmenship on them. There have been many speculations as to their origin and significancy. Of their great antiquity there can be no doubt. Some antiquarians affirm that Kit's Coty House was the tomb of Catigern, brother of Vertimer, King of the Britons, who was slain fighting hand to hand with Horsa, brother of Hengist, the Saxon, in a famous battle fought in this parish of Aylesford, in the year 455. Others again regard it as an altar connected with religious rites, and it is looked upon as of Druidical origin.

I may here mention that the information which I obtained while attending the classes of University College, particularly from the lectures of Professor Chapman in geology, and those of Dr. Wilson in history, I have found of much service to me here. Three or four distinct geological formations may be seen within a day's ride, each of which has its own characteristic agricultural management, and I felt much surprised to find so great a variety within such limited areas. While in roaming over the country one is every now and then coming in contact with castles, monasteries and churches, some of them now in ruins, which recall to one's remembrance certain pages of old England's history, which record the state of her earlier civilization and subsequent advancement. In Western Canada, and many of the States, one has to travel over immense tracts of country on similar parallels of latitude, in order to find much variety either agriculturally or pictorially; while in this comparatively little island of Britain, is to be found the geology of the world epitomized, and as a consequence all the diversities in the pursuits and habits of a teeming population naturally arising therefrom. I experienced as great if not greater change, in going from the manufacturing districts of Lancashire to those of the pastoral and agricultural of Kent and Sussex, as I did in coming from Canada to England. These British Islands, although of very limited superficial extent, from their geographical position, fertility and diversity of soil, inexhaustible useful minerals, combined with the indomitable energy, industry, and freedom of their people, are in every way qualified to form the vital centre of an empire upon which, it is our proud boast to say, the sun never sets.

G. W. B.

# Agricultural Intelligence.

## AGRICULTURE IN ENGLAND AND ON THE CONTINENT: A CONTRAST.

G. H. Sturt, Esq., M.P., in addressing the members of the Sturminster Agricultural Society, said: Perhaps you will permit me to congratulate you upon the prosperous and flourishing condition of the Society—upon the numerous, respectable, and influential assembly I now see before me—and also upon the first rate exhibition of stock which we have all witnessed in yonder meadow. I must confess that I am a better judge of oxen on the table than in the field; but still I have seen quite enough to convince me that, in point of quality, some excellent specimens of cattle have been exhibited on this occasion. I should say that the exhibition was well nigh perfect, but we have been told that if we wish to make progress we must always be a little discontented with what we have already accomplished. If one man, for instance, says, "I have done my best, and can do no more," and another, "I have done well but will try to do better," which of the two is most likely to succeed? Why, of course, the man who knows that as long as he has eyes to see, and ears to hear, it is never too late to learn. He is never too old to improve. One of our public writers has said that Time is represented with a scythe in one hand and an hourglass in the other, in order that by consulting the hour-glass while we use the scythe, we may most thoroughly keep up with the improvements of each succeeding year. It is this which has enabled British agriculturists to fertilize the fens of Lincolnshire, to reclaim the sands of Norfolk, and even in this county of ours to make much of what was once a mere expanse of marsh and wood, contribute largely to that common stock upon which the strength and prosperity of the nation so much depend. My experience in agricultural pursuits is of an exceedingly limited character, and not being an occupier of the soil, I feel that there is great truth in the

remark which has somewhere been made, at a meeting of this kind, that an ounce of experience is worth more than a whole ton of advice. Nevertheless I feel that societies of this kind are made chiefly useful by each contributing to the common stock of information that which by his opportunities and abilities he is best fitted to impart. I have this year travelled considerably abroad for the benefit of my health, and having thereby had an opportunity of instituting a comparison between British and foreign systems of agriculture, I have no hesitation in saying—and I believe I shall be borne out by all great authorities—that within the last half century, British agriculture has made an enormous advance over that of foreign countries. In many important respects the foreigner is wofully behind us. The power of steam, as applied to agricultural pursuits, seems to be entirely unknown to him. I heard the old flail going by the road-side, and I believe that if a thrashing machine or stream plough were suddenly landed on any of his farms, he would regard it as the result of supernatural agency. I saw also that for the purpose of winnowing he resorts to the novel expedient of placing the corn on a large sheet, and leaving it to the four winds of Heaven to separate the chaff from the grain. But what struck me more, perhaps, than anything abroad was the extent to which female labour is employed. That may arise, in some degree, from the complicated state of society in foreign lands, and to the system of conscription—or its equivalent—by which men are taken from the farm at an early age and converted into soldiers. As a consequence the land is obliged to be cultivated by women, who, at the age of twenty, when they ought to be better looking than at any other period of their lives, appear to be between forty and fifty. There is no kind of labour which women do not perform in foreign lands. They weed, they hoe, they sow, they till the land, they load the carts and even drive them—such is their habitual occupation. Now I am glad to say that such labour is more the exception than the rule in this country. There are several other features of contrast between English and foreign agriculture, but it is unnecessary for me to waste your time in explaining them. Suffice it to say, that I am convinced that the English system is one which not only contributes in a larger degree to the wealth of the nation than that of foreign countries, but also to the social attainments of the people—to the maintenance of healthy relations between tenants and proprietors, and to that happy constitution of society which will ever make us the envy and admiration of the world. We are not, it is almost unnecessary to remind you, working alone, for I believe there are no fewer than four hundred Agricultural Societies and one hundred-and-fifty Farmers' Clubs in the United Kingdom. I say success to one and all of them, for we must recollect that in promoting the progress of agricultural improvement, we are not only lightening the national burden, and alleviating the distress of the poor, but that we are also engaged in one of the noblest and highest tasks that can be conceived—namely, that of improving the condition of all classes in this country.

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## THE INTRODUCTION OF STEAM-POWER INTO COMMON PRACTICE.

BY A PRACTICAL FARMER.

The chief topic now under discussion amongst the farming community, is the modern introduction of steam power into ordinary farm practice; and the advocates of the different systems of culture, or application of the power, are alike equally sanguine as to the important change and ultimate benefits. That this gigantic power will be so modified, so simplified in its general character, as to become applicable to the common routine of modern farm practice, I do not entertain a doubt—it is merely the work of time, and engineering, and mechanical skill.

I shall not attempt to compare the various systems of cultivation, or even allude to them further than to show what may be the probable alterations in the management of those farms where this new system will be introduced; and the power of steam is adopted in lieu of horse and manual power whenever it can be found practically beneficial. My own impression is, that the order of culture will be so surprisingly improved, that the enhanced produce it will achieve will be so considerable, that the inducements continually opening out before the steam-power farmer, of still greater results, will so satisfy him, that he will be readily disposed to employ both more horse and more man-

nal labor, rather than displace either one or the other—in fact, he will be glad to retain every horse and man he now employs, in addition to the power of steam.

Take an arable farm of 350 acres, of medium quality and fair depth of soil—a useful loamy soil; begin your steam cultivation immediately after harvest, or rather during harvest, or so soon as the implement can be put to work after the crop is reaped. The whole breadth of the farm under corn-cropping would be wonderfully advantaged by being broken up and deeply cultivated during the closing months of autumn. The power of steam, in addition to the team labor, could alone achieve this grand desideratum. Here, then, is profitable employment for every horse and man, which I will call occasion number one.

Then comes the wheat-seeding, and occasional labor in various ways. The farmer requires, first, seed-wheat; secondly, a customary lot for sale to replenish his purse after an expensive harvest, and to meet sundry payments: these must be provided for. The teams are therefore engaged in the several processes of business, while the steamer is thrashing the wheat. The team labor will consist of the harrowings and the scarifyings of the deeply broken-up soil effected by the steam plough and cultivator, the cartage of collected weeds and rubbish, the manuring of the land intended for wheat, the preparation of the seed-bed for the wheat-sowing, and the subsequent completion of the wheat-seeding. At the same time also come in season the taking up of the potato crop, the securing the mangold crop, and all other root crops not generally grown; besides many collateral and necessary jobs, such as the marketing and the delivery of corn, the obtaining supplies of manure, the carting of field-stacks and stubble to the fold-yards for winter fodder and lairage: these and similar engagements employ much team labor. This I shall call occasion number two.

If there is during the year to be a dormant time, it will be during the severer part of the winter months; but it will be found that the new and novel courses of culture incident to the adoption of steam-power, will provide much extra work for the teams and laborers. For instance, all lands requiring subsoil drainage must be so drained; this of course involves cartage to a considerable extent. Then all lands having high-backed ridges will require levelling; all borders and ditch banks, &c., will require carting into the hollows and furrows; then all over-grown hedge-rows and rootings will have to be carefully dug close, to give room for the steam-ploughs, and prevent harm and breakage. Then comes the cartage of lime, chalk, and manures from fold-yard, where required. I also anticipate a large increase of cattle and sheep required for the consumption of the root and straw crops; these will during the winter months require a large amount of cartage: the roots from the fields to the fold-yards, the manure from the fold-yards to the fields. I also anticipate a large amount of field labor will be done by steam-power during the winter—such as trench-ploughing in fine weather, subsoil ploughing, and the ordinary ploughing of such lands as were unavoidably left over in the autumn, or were required for some specific use. Then there are the winter thrashings—the chaff-cuttings; for I am sanguine enough to think that most of our cattle fodder will be ultimately cut into chaff. Then the cake-breaking, turnip-cutting, pulpings of mangold, and other roots—all these, I consider, will be greatly extended, owing to the enhanced produce of the farm by deep steam culture; so that from one source of employment or other, the teams will not have much idle time during the winter.

But spring is coming in, and all attention must therefore be given to get in the spring crops well, and in good time. The steam-ploughs and cultivators are again at work; and as there is no treading by horses in the culture, the land will work freely, and is soon ready for seeding; this is put in by the horse teams with the greatest expedition, so that the spring crop has the whole spring to grow and luxuriate in. This is very different from the old course, which generally occupies the whole spring up to the month of May before all is completed. Moreover, the land has had the advantage of a thorough pulverization, which as it disintegrates the ammoniacal salts, &c., in the soil, adds much to its fertility, and produces the more abundant crops; and in a way which could not be accomplished by team labor. This is more particularly the case with the autumn-worked soils: the more they are cultivated in suitable weather, the more calculated are they for producing the most abundant crops of wheat. The spring seeding then I call occasion number three, when all team labor finds full employment.

We now come to the fallowing and the putting-in of fallow crops. The ways are various; but all concur in the view that fallows cannot in reason be too highly worked. We have broken them up in the autumn at great depth; some we have laid up for the winter in trenches. These we respectively desire to cultivate at great depth, and very

frequently in suitable weather: for this purpose all our power of steam and team power is required. The steam power we would employ to cultivate deeply; the team power in the top scarifyings, harrowings, rollings, and draggings, and subsequently in the manuring, ridging, and nicer work of seeding. In carrying on these various operations simultaneously, the whole strength of the farm will be more than requisite, and it will be found to yield a far more profitable return than the tardy slow process now generally followed, to the manifest waste of much manure, and much valuable time in its growth: besides, if a fallow crop, *i. e.*, mangolds, turnips, &c., is put in quickly and together, it will all grow up more steadily and safely. The fly has no power over a large field growing all at once; but after the old fashion these pests can find food at one side of the field which is first sown and fresh come up, and so feed their way to the other as it comes up, to their liking. The fallow-seeding then I call occasion number four.

Well, now come hay and corn harvests, and the clearing of the fold-yards and preparations for these harvests. The horse-hoeings of the fallow crops, and the little necessary works and improvements generally left for completion between seeding and harvest, occupy the teams. I need not say that the harvest occupies all hands and all teams. This I shall call occasion number five.

Now, I think I have fairly shown that the adoption of steam-power will not necessarily displace much other labor; but if it is to be carried out in its full efficiency, I believe the farmer may best look upon it as a great and powerful auxiliary, and which he ought not to be slow in adopting. It will, he may rest assured, better execute his harvest work than it can be done by horses, and will always make him in a great measure independent of our fickle climate, so that he will never lose his season if he only acts judiciously.—*Mark Lane Express.*

The Fall Wheat.—From what we can learn, the fall crops in the County of Middlesex present a very promising appearance, and in no solitary instance do we hear of its being winter killed. The danger, however, is not yet past; still we hope for the best, and trust that, through Providence, we may be blessed with a bountiful return, to make amends for the past failures which have taken place in the grain crop throughout Canada.—*Prototype.*

# Horticultural.

## BRIEF HINTS ON SOWING AND RAISING CULINARY VEGETABLES.

[The following plain directions for cultivating the ordinary crops of the Kitchen Garden, taken from Mr. Fleming's Annual Catalogue of Agricultural and Garden Seeds, will be found useful to many of our readers.]

In selecting seeds, the first thing to be attended to is to choose the best to be had, and if possible obtain them from a responsible seedsman. Never buy those which are "cheap" because they cost less, for they will prove the "dearest" in the end.

Most kinds of seeds grow more freely if soaked in soft water from 12 to 48 hours before sowing. Seeds of a hard nature, such as blood-beet, mangel-wurzel, nasturtium, &c., often fail from want of attention to this circumstance. Indian Corn, Peas and numerous others soaked four hours in a tepid solution of chloride of lime and water, mixed in the proportion of one-fourth of an ounce of the lime to a gallon of water, and then sown in the ordinary way, have been known to throw out germs in twenty-four hours.

The seeds of common garden cress, immersed in oxygenated muriatic acid, will germinate in six hours; whereas, when immersed in water alone, they will not show signs of vegetation in less than thirty hours.

*Kidney* or *French Beans* may be planted any time in May in drills, two inches deep, the beans two inches from each other, the drills about 18 inches apart. If a regular succession is required, sow a few every few weeks, from the 1st of May to the 1st of July.

*Broad* or *Windsor Beans* do not succeed well in this climate, the summer heat coming on them before they are podded, which causes the blossoms to drop off. The

best soil to grow them is in a rich stiff clay, and on a northern border, shaded from the mid-day sun. Sow in drills two feet apart, the drills two inches deep, and the seeds three inches apart.

*Blood Beet, Long and Turnip,* may be sown in a good rich, deep soil, about the first week of May. Draw drills about a foot apart and one inch deep; sow moderately thick; when the plants are up strong, thin them out the distance of six inches from each other in the rows.

*Brocoli* and *Cauliflower* require a deep rich soil, of a clayey nature and highly manured. To produce early Cauliflower, or Brocoli, the seed ought to be sown in a hot-bed early in March. When the plants are quite strong and hardy they may be planted out in the garden about the middle of May. Plant in rows two feet square. The kinds that will do well in this climate are the Early London and French Cauliflower, Purple Cape, and Walcheren Brocoli.

*Cabbage,* both early and late, maybe sown any time in May. The best situation for raising the plants is a rich damp piece of ground, partially shaded. Seed sown in a situation of this kind is not so subject to be destroyed by the black flea. When the plants are strong they may be planted out in rows and managed the same as directed for Cauliflower. The best kinds for summer use are the Early York, Battersea, and Vannack; for winter use, the Drumhead, Large Bergen, and Flat Dutch.

*Cucumbers* may be sown in the open ground any time in May. They require a good rich soil. Sow in hills four feet apart, leaving only three plants on each hill. The cucumber and melon vines are liable to be attacked by a yellow fly or bug. Soot, charcoal dust, and soap suds, applied to the plants, will assist in keeping them off.

*Musk* and *Water Melons* may also be sown at the same time, taking care to sow the different kinds a good distance apart from each other, as they are apt to mix. Plant in hills, six feet square, leaving only three plants on each hill. When the plants have grown about six inches, stop or pinch out the top of the leading shoots; which will make the plants throw out lateral shoots, on which you may expect to have fruit.

*Carrots.*—The most suitable ground for growing Carrots is a deep rich soil, that has been well manured the previous year. Sow any time in May, in drills one foot apart and one inch deep. When the Carrots are up, thin them out, four inches apart, and keep the ground free from weeds. The kinds that are generally sown in gardens are the Early Horn, Long Orange, and Red Surrey; for field culture the White Belgian and Altringham. The produce of one acre of field Carrots, when properly cultivated may be rated at from 500 to 800 bushels. In cultivating them on the field system, the drills ought to be two feet apart, and the Carrots thinned out, at least twelve inches asunder.

*Celery*—This vegetable is much esteemed as a salad. It requires considerable attention to grow it to perfection. To have early celery the seed requires to be sown in a hot bed in the month of March; for winter celery, the seed may be sown any time before the middle of May. Sow on a small bed of rich fine earth—beat the bed down with the back of the spade; sift a little fine earth over the seed; shade the bed with a mat or board until the plants begin to appear. Celery plants ought to be picked out into a nursery bed as soon as they are two or three inches high. Cut their roots and tops a little before planting; water them well, and shade them from the sun until they begin to grow. Let them remain in the nursery bed about one month, after which they will be fit to transplant into the trenches. The best sort of soil to grow Celery in is deep rich loam, and in an open part of the garden. Mark out the trenches a foot wide and three feet between each trench. Dig the trenches one foot deep, laying the earth equally on each side. Put three or four inches deep of well-rotted manure into the bottom of each trench; put a little of the surface soil over the manure; dig it well up, incorporating the soil well with the manure; dress the plants by cutting off the long leaves and the ends of the roots. Plant in single rows along the centre of each trench, allowing six inches between each plant. Water them well, and shade them from the sun until the plants begin to grow. In earthing up Celery great care should be taken not to cover the heart of the plant.

*Lettuce* is easily raised from seed, which may be sown from the first of April to the end of June. If good headed Lettuce is wanted, the plants should be transplanted out on a rich piece of ground in drills, 12 inches apart, and six inches in the drill. The Malta, Green Coss, and Victoria Cabbage, are the most suitable kinds to sow, as they head without tying up.

*Onions.*—The yellow and large red are the best for a general crop. The ground for

Onions should be well prepared, by digging in plenty of well-rotted manure. The seed may be sown from the middle of April to the middle of May. Sow in drills one inch deep and twelve inches apart. When the young Onions are up, thin them out to the distance of three inches apart.

*Parsnips* require a deep rich soil. Sow in drills, one inch deep, and the drills 15 inches apart. Cultivate the same as directed for Carrots.

*Radishes* should not be sown in the open air sooner than the middle of May. They require a deep, sandy soil, that has been well cultivated and manured the previous year.

*Rhubarb* is a perennial plant and may be raised from seed. Sow about the middle of May. When the plants are one year old, they should be transplanted into very deep rich soil, in rows three feet apart. The foot stalks of the leaves should not be cut until the plants are two years old.

*Salsify* is an excellent vegetable. The roots, when properly cooked, resemble oysters in flavor. The seed may be sown from the first of April to the middle of May. They require the same kind of soil and cultivation as directed for Carrots.

*Spinach* is a useful vegetable, and very hardy. Seed sown in the month of September will stand over the winter, and come in for early greens in the spring. For summer use, seed of a round Spinach may be sown from May to July. It requires a rich soil. Sow in drills, one foot apart.

*Tomatoes* are much cultivated for their fruit. To have them early, the seed should be sown in a hot-bed, early in March. When the plants are a good size, and Spring frosts are over, plant them out in the garden; let the plants be four feet apart. Plant on a south border near a fence, and they will produce abundance of fruit.

*Turnips.*—One of the best sorts for the garden is the Early White Stone, which may be sown from the middle of May to the end of August. Sow in drills, fifteen inches apart, and thin out the plants to eight inches asunder. Field Turnips, such as Swedish, Aberdeen, Yellow, &c., may be sown in drills, two feet apart, about the middle of May. White Globe, and Flat Norfolk, will do to sow about the middle of July. Turnips are very apt to be eaten by the black flea. A good remedy is to steep the seed one night in train oil. This will greatly promote germination, and the growth of the young plants.

JAMES FLEMING,

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## GARDEN HINTS FOR APRIL.

[We take the following from an excellent periodical, entitled "*The Gardener's Monthly;*" ably conducted by Mr. Thomas Meehan, of Philadelphia. Some of the directions will apply a little later in Canada. We would strongly recommend the *Gardener's Monthly* to such of our readers as require a reliable guide, neatly printed and illustrated, with good, sound, original matter. Mr. James Fleming, Seedsman, of this city, is an agent for the work,—only $1 per annum.]

### FLOWER GARDEN.

The most active period of the year in this department has now arrived, and much of the success of the season will depend on how the work is performed now. In preparing beds for flowers, it is of first importance that the soil should be *deep*. It should be dug up or subsoiled to the depth of eighteen inches at least, and a fair dressing of enriching material given them. The best kind of soil to grow flowers is in the top soil—say two inches in depth—of an old piece of woodland. This may be mixed at the rate of about one half with the natural soil. Where this cannot be had, some very rotten stable-manure or the old soils from the surface of a common will do. It is not well to have the soil very rich, or more leaves than flowers will result.

As soon as all danger of frost is over, the border plants will have to be planted out. They should not be taken at once out of the greenhouse to the open

ground. It is better to set them in a sheltered spot in their pots for a few days, until the leaves have become somewhat hardened. Before turning them out of their pots to the flower-beds, water well *first;* the soil must be pressed firmly against the balls of the roots, as they are planted in the ground.

Where bedding-plants have to be bought, it is not good policy to choose tall, delicate plants, that have been forced early into growth. Select such as are green, dense, and bushy, and have vigorous looking foliage. Fine leaves, at this season, is a greater sign of health than fine flowers.

As soon as the grass on the lawns commences to grow, if it has had a top-dressing of manure in the winter, whatever straw may be on should at once be cleanly raked off, and as soon as it is long enough to *take* the edge of the scythe, it should be mowed. It is of first importance that the first mowing should be done as early as possible in the season. If left to grow long before the first cutting, the leaves get yellow at the base, and at every cutting after the yellowness appears, totally destroying the fine green color which gives the lawn its chief attractions. Where a first-rate mowing is desired, it is best to roll the grass the day before cutting. The grass is then pressed all one way, and cut evenly, and any dirt or stones pressed beneath the surface that would otherwise take the edge off the scythe. A good lawn-mower keeps his scythe very sharp. Some grind a little before each regular set-to at mowing. Those who are not accustomed to mowing lawns, should take but a few inches in width at a time, so as not to "score." With a little thought and judgment, any field-mower can soon become a good lawn-hand. A sharp scythe is the chief element of success.

In planting out for summer show, climbing vines must not be forgotten. Screens can be formed of them, besides many beautiful and fanciful objects, and then their training over strings, wires and arbors, afford much pleasant and interesting occupation for the ladies.

The sowing of hardier annuals should be finished as soon as possible, according to directions furnished last month. The tender kinds, such as Balsams, Globe Amaranthus or Bachelor's Buttons, Thunbergias, &c., should be put in about the end of the month. There is now pretty well known an Orange Globe Amaranthus (Gomphrena Hoveyi), introduced several seasons ago from Mexico by Mr. Hovey, of Boston, and in an open sunny spot, is really a very beautiful kind to grow. The Cypress vine, both white and crimson, is rather impatient of cold, and had better not be sown till the end of the month. Gladioluses are becoming a very popular summer-blooming bulb, as Hyacinths are for winter and spring. They are very beautiful, and thrive in any rich sandy soil. They also may be planted the end of the month. The same may be said of Tuberoses. Do not forget when the autumn comes, to take up the roots, as they are injured by the first frosts.

I prefer the present and May to any other for trimming box-edgings. They look much better when cut to a conical form, than when squared at the top, and besides, are much less liable to die out in patches.

This is the best part of the spring, on the whole, to plant evergreens. For immediate effect, they are usually planted much thicker than they are ultimately able to occupy with any credit to themselves. In planting, take care to plant those that will finally remain first, and fill in the temporary ones after. It is not uncommon to see trees—a Norman Spruce, for instance, that will in a few years possess a diameter of thirty feet, planted perhaps but six or eight feet from the edge of a walk, and no other near to stay when the one so inconveniently close has to be removed.

Deciduous trees and shrubs may still be planted,—the longer, however, they are delayed till the middle of May, the more severely they should be pruned at planting. If this be attended to, there is no risk, if even the tree has burst nearly fully into leaf.

### FRUIT GARDEN.

Grafting can be continued till the buds of the trees are nearly pushed into leaf. Sometimes, from a pressure of other work, some valuable scions have been left on hand too late to work. It may be interesting to know, that if such scions are put into the ground much the same as if they were cuttings, they will keep good

for six weeks or two months, by which time the bark will run freely, when the scions may be treated as buds, and will succeed just as well as buds taken from young summer shoots.

In planting dwarf Pears, it is very important to have them on a spot that has a moist subsoil, either naturally, or made so by subsoiling or mixing some material with the soil that will give out moisture in dry weather. Trees already planted on a dry gravelly subsoil, should have a circle dug out two feet deep and two or three feet from the tree. This should be filled up with well-enriched soil. If the dwarf Pear does not grow freely, it is a sign that something is wrong. It should at once be severely pruned, so as to aid in producing a vigorous growth. The dwarf Pear, and many other kinds of fruit trees. are often liable to the attacks of the scale, a white insect, which gives to the tree a powdered appearance. These may be readily destroyed before the buds burst, by syringing the tree with water heated to 160°.

Strawberry-beds are very frequently made at this season, and though they will not bear fruit the same year, are much more certain to grow, and will produce a much better crop next year than when left till next August. Though it is a very common recommendation, we do not value a highly-manured soil. It should be well trenched or subsoiled; this we consider of great value. In rich soils there is too much danger of having more leaves than fruit.

### VEGETABLE GARDEN.

Those who look with peculiar affection on the "sour krout" barrel, must look out at once, if not already sown, for good cabbage seed. The Drumhead is the kind most generally used; but those in the secret give a knowing wink when the Savoy is named in that connection. Purple Cape Brocoli, Autumn Cauliflower, and Red Dutch Cabbage, by those who "love" pickles, must also be sown. After all the receipts given for preserving these seeds from the Turnip fly, the best plan is to sow the seeds in a frame or box with high sides. The "little jumper" does not seem to like to risk his limbs by a high leap, or his nasal organs may not be good—or "what the eye does not see the heart does not grieve for," or for some other reason, he leaves them alone under such circumstances. Celery, with most families, is an important crop, and should be sown about this period. A very rich moist spot, that will be shaded from the mid-day April sun, should be chosen; or a box in a frame by those who have the convenience.

Tomatoes, Egg-plants, Peppers, and similar plants, every gardener tries to get as forward as possible. South of Philadelphia they may be out unprotected by the middle of the month. Here we seldom risk them before May. The same may be said of Sugar Corn, dwarf and Lima Beans, Okra, Squash, Cucumber, and Melons. No "time" can be set for growing these, except not to sow till the ground has become warm. A few warm days often makes us "feel like gardening," but unless the ground is warmed, the seeds will be very likely to rot. Here we sow about the first week in May. Onions for seed should be sown in rich soil, but very thickly, so as not to become larger than marbles. Very far North, where they perfect in one year, this advice is, of course, not intended. A crop of Carrots should be sown the end of April. In moist seasons the earlier crops are liable to run to seed.

Much has been written about growing Potatoes, and the plan of covering the sets with straw, leaves, or brushwood, before covering slightly with soil, is quite popular. Early York Cabbage sown last month, or kept over the winter, must now be planted out where there is a demand for summer greens; and to meet this want, another crop of Spinach may yet be sown.

Few things mark a well-kept garden better than an abundance of all kinds of herbs. Now is the time to make the beds. Sage, Thyme, and Lavender, grow from slips, which may be set in now precisely as if an edging of box were to be made of them. They grow very easily. Basil and Sweet Marjoram must be sown in a rich warm border. Salsify and Scorzonera like a damp rich soil.

Tree Labels.—The correct labelling of trees, shrubs, flowers, &c., cultivated in our orchards, shrubberies, and gardens, is a matter of much practical importance,

especially with reference to distinctness and durability. Many plans have been adopted with more or less success. A correspondent of the *Country Gentleman*, speaking from personal experience, recommends *sheet zinc*, fastened to the tree by copper wire, the name of the variety being written thereon by a black lead pencil. A pencil is far better and more durable than ink. Old zinc, the surface of which has been roughened by oxidation, is better than new; but in case the former is not readily procurable the application of strong acetic acid (vinegar) to the surface of new zinc will speedily effect the desired purpose.

# Miscellaneous.

## THE COTTON-GROWING CAPABILITIES OF SOUTH AFRICA.

On Monday morning, a meeting was held in the Council Chamber of the Town Hall, to hear a statement from the Lord Bishop of Cape Town with respect to the commercial resources of South Africa. There were about 200 gentlemen present, including deputations from the chambers of commerce of Bradford and Leeds.

The Bishop of Cape Town said he believed that Englishmen had been planted on the western coast of Africa, and at the southern extremity, in order that we might diffuse Christianity throughout that land, and raise up one of the most degraded countries in the world to take rank amongst the civilised nations of the earth. In the Cape Colony there was a population of 300,000 or 400,000 persons, but the country, which was 600 miles in length and 400 in breadth, would accommodate as many millions of population as there were now hundreds of thousands. The inhabitants were chiefly engaged as a pastoral people. The chief production of the country was wool. Year by year the produce was increasing, and last year the exports amounted to about £1,000,000. In the western parts of the colony wine was produced of good quality, and no doubt large quantities of it had been sold in this country as port and sherry. Hides, skins, and ivory were imported from the north, and exported from the Cape. The climate was one of the finest in the world, and it was in the south in the same latitude that Gibraltar was in the north. There was a want of internal communication, and the country was not favourable for the construction of railways, although a line was being made from Table Bay through the vine districts, and another was in contemplation from Port Elizabeth to Graham's Town, a distance of eighty or ninety miles. In the Cape Colony there was no cotton culture carried on. He considered that British Kaffraria was a fertile country, and it was now being given out to farmers in small parcels with a view to people the country. Kaffraria Proper was one of the finest countries of the world, and one of the rivers by which it was intersected was finer than the Orange River. No country offered so fine a field for emigrants. Along the coast of Kaffraria Proper he had seen the cotton plant growing, and if we could succeed in civilising the country we might have cotton grown there to a considerable extent. Natal, which was populated with about 120,000 loyal Zulus, was a cotton-growing country; but the cultivation of the sugar plant was likely to thrust out the cotton culture. In that portion of country under King Pandar there was a large heathen population, and it was his intention to try to establish a missionary station there. The Griquas was not a cotton-growing country, but all along the banks of the Zambesi, as Dr. Livingstone had stated, the country abounded in the cotton plant. Dr. Livingstone had also found the coffee plant, the sugar cane, and the castor oil plant there; and the resources of the country were capable of great development. His lordship then described the plans he had in view for the extension of Christianity and civilization to the interior of Africa. Fifty of the sons of the leading chiefs from the interior were now being educated at Cape Town at the expense of the governor, Sir George Grey, and one object he had in view was to raise funds to found a permanent institution to educate natives. Miss Burdett Coutts had given £2,500 for this purpose, £1,500 of which was to be devoted to building purposes; and the Society for Promoting Christian Knowledge had given a donation of £500 towards establishing the institution. The cost of supporting and educating the pupils in this institution was £16 per annum each, and if fifty persons in England would each adopt a child, he should feel he had established an institution which would be of the very greatest advantage to Africa. (Applause.) In answer to questions put to him,

the bishop said the place where he had seen cotton growing abundantly, and dropping on the ground for want of gathering, was inhabited by heathen, and was beyond our dominions. The children who were now under education at Cape Town made rapid progress in their studies, and were wonderfully intelligent. Dr. Livingstone spoke of flax being grown in the interior, but in the Cape Colony there was nothing of the kind known.—*Manchester Examiner.*

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## AN APRIL DAY.

When the warm sun, that brings
  Seed-time and harvest, has returned again,
'Tis sweet to visit the still wood, where springs
  The first flower of the plain.

I love the season well,
  When forest glades are teeming with bright forms,
Nor dark and many-folded clouds foretell
  The coming-on of storms.

From the earth's loosen'd mould
  The sapling draws its sustenance and thrives;
Though stricken to the heart with winter's cold,
  The drooping tree revives.

The softly-warbled song
  Comes from the pleasant woods, and colour'd wings
Glance quick in the bright sun, that moves along
  The forest openings.

When the bright sunset fills
  The silver woods with light, and the green slope throws
Its shadows in the hollows of the hills,
  And wide the upland glows.

And, when the eve is born,
  In the blue lake the sky, o'er reaching far
Is hollowed out, and the moon dips her horn,
  And twinkles many a star.

Inverted in the tide,
  Stand the gray rocks, and trembling shadows throw,
And the fair trees look over, side by side,
  And see themselves below.

Sweet April!—many a thought
  Is wedded unto thee, as hearts are wed;
Nor shall they fail, till, to its autumn brought,
  Life's golden fruit is shed.

LONGFELLOW.

COLIC IN SHEEP.—Sheep kept on dry food during our long winters, even when turnips or other kinds of roots are given them, will occasionally be subjected to the colic, a disease which unless timely checked, will often prove fatal. The following remedy, when administered in time, seldom fails:—

Mix together ten drops of laudanum, ten drops of essence of pepperment, one teaspoonful of the spirits of turpentine, and one table-spoonful of sweet oil. Give this in one dose, and if relief is not afforded in the course of a few hours, repeat the dose.

CONDITION POWDERS.—The following powders will be found excellent for horses kept on dry food:—Take crocus of antimony, finely levigated; nitre, cream of tartar, and flour of sulphur, of each four ounces: Powder and mix them well together for use.

One table-spoonful to be given every night and morning, in a mash of scalded bran, or a feed of oats, moistened with water, that the powders may adhere thereto.

Opening Fever Ball.—Take, calomel, camphor, and Turkey opium, of each one drachm; Barbadoes aloes, three drachms; ginger, two drachms. Make them into a ball with palm oil, and give it to the horse, and the following drink two or three hours after.

Purging Drink for a Horse.—Take, Lenitive electuary, four ounces; cream of tartar, one ounce; ginger, in powder, half an ounce; castor oil, eight ounces. Mix in a quart of gruel.

A Powerful Mixture for Fevers in Horses.—Take, emetic tartar, one ounce; calcined antimony, two ounces; calcined hartshorn, one ounce. Mix and grind them in a mortar to a fine powder, and then put them in a bottle for use. Two drachms of these powders are a proper dose for a horse, given twice or three times a day in a pint of warm gruel.

# Editorial Notices, &c.

Winter Wheat.—From almost all parts of the Province the reports are favorable of the growing wheat, which is represented as looking particularly strong and promising, except in low and wet lands, on which it always more or less necessarily suffers. The late cold winds and frosty nights checked its growth and caused it to assume a brown appearance, but upon sound land, in good heart, no injury worth mentioning has been sustained. Never perhaps was a harvest looked forward to with so much anxiety in this country, as the one which now promises so well, and all must devoutly hope that those promises may be ultimately realized. Good crops at moderate prices would at once turn the tide of affairs in the right direction, and form an epoch in our commercial history, from which we might reasonably expect the commencement of a career of prosperity. It is true that the wheat may be as the season advances, exposed to the attacks of the midge and rust, but we should do well to bear in mind that the autumn sown wheat was never put in earlier or in better condition—that it has become strong rooted, and now (April 14th,) almost beyond all risks of becoming heaved out by frost. We get similar accounts generally from the Northern and Western States. The season has been pretty favorable for making maple sugar, of which large quantities will be obtained in some parts of the Province. The present wet and stormy weather keeps back spring work; the ploughing has been extensively performed, but as yet little sowing. Better to wait for dryness and warmth.

Brockville Horticultural Society.—We are in receipt of the Premium List of this useful and flourishing Society, for the current year. The first Exhibition will take place on the 30th of June, and the second some time in September. The list embraces the usual varieties in the Floricultural, Fruit and Vegetable Departments; and we hope the Directors will see that the Society is as well represented at the Provincial Show in Kingston, as it was last year in Toronto.

How to Harden Soap.—We publish the following with a view of meeting the wants of a Subscriber:—

Soft soap may be hardened by adding salt, in the proportion of one pint of the latter to three gallons of the former, boil the mixture five or ten minutes, and put it into a shallow vessel to cool. Next day, cut out the soap, melt it, and cool it again; this takes out all the ley, and keeps it from shrinking when dried. The fat should be prepared previous to soap-making, by boiling it in clear water and carefully straining it. Keep it in a dry place, when it will gradually harden, and in a short time will be fit for use.

Seeds.—Mr. Simmers, general seedsman, offers a variety of garden and field seeds, suitable to the season. His advertisement appears on the cover of this issue.

THE

# Canadian Agriculturist,

AND

## JOURNAL OF THE BOARD OF AGRICULTURE

OF UPPER CANADA.

VOL. XI. TORONTO, MAY, 1859. No. 5.

## RAISING ROOT CROPS.

May is a busy month to the farmer, in which the multifarious work of Spring has to be completed. A large breadth of spring wheat has been sown under favorable circumstances, and the same remark will apply to oats and barley.—Athough the Spring is not so early as was at one time anticipated, farm work has been much advanced, and plenty of time has been afforded the farmer for thoroughly preparing his ground for the planting of Indian corn, potatoes, and the root crops generally; a condition upon which after progress and final success so greatly depend. All these crops require land to be sound and dry, deeply cultivated, and, if not naturally rich, to be well-manured,—the manure intimately mixed with the soil, in order to obtain a large and profitable produce. Imperfect and slovenly culture is certain to end in loss; for one acre well managed will produce more than two, subjected to an opposite treatment. In the growth of roots, then, in particular,—although the reasoning holds good in all other crops,—the farmer should aim to obtain the maximum of produce from the minimum of space—the only principle on which root culture can be made to pay.

Mangel-wurzel should be sown as soon as the ground is in a warm and dry condition, and with but little risk of severe night-frosts. The drills are commonly made too close; on good land, and with the larger sorts of mangels, 30 to 36 inches is not too wide. All plants require abundance of light and air, which is particularly the case with farm root crops; and sufficient room should always be left for frequent cultivating with the horn-hoe during the season of growth, without the risk of bruising the succulent plants. The long, red mangel produces the heaviest crop on rich and deeply cultivated land; but upon shallow soils the yellow globe variety is better adapted. Mangel-wurzel is by far a more certain crop in this country than turnips, not being so liable to injury from insects, and rooting deeper in search of food. It will also keep longer in the Spring, and may be given in larger quantities to cows, without imparting an unpleasant flavor, as turnips do, to the milk and butter. It requires, however, to be thoroughly protected from frost, being in this respect almost as tender as potatoes. For feeding purposes it ranks inferior to Swedish turnips. From the large amount of sugar which it contains, all kinds of stock, including

horses and pigs, consume it with avidity. No farmer ought to be without a small portion, at least, of this useful root, which is invaluable to newly-calved cows in early Spring.

The Swedish turnip is a root whose valuable qualities are too well known to need particular description. It has long constituted the sheet anchor of the British farmer. In this country its culture is more uncertain; but by the exercise of judgment and liberal culture, we have seen large and remunerating crops raised in Canada. Turnips in this country succeed best on new land, rich in organic materials. They should be sown in drills from 24 to 30 inches asunder, and well thinned out in the rows. The precise distance at which the plants should stand, is an important and somewhat difficult point to ascertain in practice, and depends on the nature and strength of the soil, the variety of the turnip, character of the season, and other circumstances. As a general rule, people are too apt to crowd their plants, thereby materially injuring the quality and amount of the crop. If sown too early, Swedish turnips are peculiarly liable to mildew. The latter end of May and beginning of June will, in general, answer best; and it is particularly important that the state of the ground and weather should be such as to hasten germination, and push the young plants into what is termed the rough leaf, when they are beyond the attacks of their fatal enemy the fly. The purple top variety may be considered as yielding generally the largest weight per acre; but Laing's improved—a finer and somewhat smaller kind—is better adapted to the market and domestic use. The Swedish turnip is hardy, and may be preserved through the winter in the field, in heaps, taking care not to cover too thickly, and to allow of ventilation by means of openings through the mass, otherwise the heat generated by the mass will set up fermentation and speedily effect decomposition. The Swedish turnip is an excellent fattener of stock, and in this respect is considered for practical purposes unrivalled.

Carrots and parsnips have of late years been introduced to field culture, but to a much less extent than turnips, even in the most agriculturally advanced countries of Europe. The Belgian variety of the carrot yields a large return when not sown too thickly; and it is much recommended for horses, especially in the Spring of the year, before there is a sufficient growth of grass for feeding. It is said that horses fed with small quantities of carrots through the Winter and Spring seldom, if ever, become broken-winded. Any kind of succulent food given in conjunction with dry fodder would, no doubt, be beneficial in that respect. Both carrots and parsnips are excellent for milch cows; as the flavor of the milk and butter is not thereby affected. These crops require to be sown early in drills eighteen inches apart, upon good, well and deeply prepared soil, and should be thoroughly hoed once or twice dering the period of early growth, so as to keep the surface friable and entirely free from weeds. We would advise farmers to commence their culture of these crops on a small scale. Nothing short of thorough management will pay.

In this month the great bulk of field potatoes is planted, and the season so far has been quite favorable to the operation. The seed is generally sound, and the soil, except where naturally wet, is in a good state for the reception of the tubers. Of late years the potatoe crop has been too uncertain to be generally profitable, but with proper attention in preparing the land and selecting seed, and subsequent treatment, we may reasonably hope for a liberal return next fall. If the cases of failures, which of late have been so prevalent both in our root and cereal crops, were rigidly investigated, the principal cause, we suspect, would be found to consist in the imperfect preparation of the soil and the want of drainage.—These, with the too frequent repetition of wheat, are the occasion of nine-tenths of the failures and losses experienced by farmers.

## PROVINCIAL EXHIBITION.

It is, we presume, generally known to our readers, that the Annual Exhibition of the Agricultural Association of Upper Canada, including Mechanical Productions and Manufactures, Horticulture, Ladies' Work, and the Fine Arts, will take place at Kingston, commencing on the 26th of September next.

Notwithstanding the continued and severe presure of the times it is encouraging to know that the Kingston Local Committee has been organised, and that they are determined to do their utmost to make the show successful. It can hardly be expected, under the present severe monetary pressure, that corporate bodies, any more than private individuals, can be so liberal in the support of public objects, as they would be under more favorable circumstances; yet from the following extract from a Kingston paper it will be seen that nothing will be wanted at the next Exhibition relative to the accommodation of visitors or Exhibitors. It is fortunate that Kingston already possesses a capacious and permanent exhibition building, ample grounds, permanent fence, offices, &c. The President of the Association too, happens to be a Kingston man, whose experience and public spirit in these matters are well known and appreciated, and who, in connection with an energetic committee, will no doubt render the local arrangements as full and perfect as possible. The Board of Agriculture, it is satisfactory to know, have determined not to diminish the amount of premiums from last year, near TWELVE THOUSAND DOLLARS! The prize list will therefore continue substantially the same. In our next we shall probably have something more definite to communicate. In the meantime we earnestly entreat intending competitors in every county of the Province to lose no time in commencing preparations; for much is often lost to the show, especially among mechanics, from the habit of procrastination. From the position of Kingston, it is more than probable that a large number of exhibitors will be induced to come from the Lower Province:

"A meeting of the Committee of Management of the Provincial Exhibition took place on Thursday in the City Council Chamber. Col. Cameron, in the absence of His Worship the Mayor, took the chair. The Chairman expressed a hope that the Committee would be zealous in the performance of the important duty confided to them, in organizing the Exhibition for 1859 in a manner creditable to the city, and beneficial to the entire community.

Mr. Ferguson and Alderman Meagher presented a report from the sub-committee appointed to prepare the buildings for the Show, which recommended that permanent accommodation should be provided on the show-grounds for 300 head of cattle and 50 horses; that a permanent building should be erected for the exhibition of castings, models, &c.; that a gallery should be erected around the Crystal Palace for the exhibition of paintings, statuary, fine arts, and ladies' work; an orchestra for musicians, and sheds for the exhibition of carriages, &c., at a cost of £1,450—making, with the amount of guaranteed debt on the Crystal Building, a sum of £2,450 required for the September Show.

It was moved by Thomas Briggs, Esq., seconded by Mr. Richmond, and carried unanimously, That the Report be received, and left for further consideration, and that the Secretary, in the name of the Local Committee, communicate with the City Council, the County Council, the Township Societies, and with all who will aid the Kingston Exhibition. After further discussion the meeting adjourned to Thursday, at 3 P. M."

## TRIAL OF MOWING AND REAPING MACHINES.

We are requested to state that the West Riding of Durham Agricultural Society intends offering premiums to Mowing and Reaping Machines. The object is not so much the mere distributing of prizes amongst the competitors,

as to obtain a public exhibition of the capabilities of the machines. The riding is one of the best sections in the Province, and many of the farmers are desirous of securing machines of the best construction and adaptedness to their work; hence the Society has resolved to further the object by advertising a public trial. The trial will come off when the crops have arrived at the proper state of maturity, and in suitable fields within the riding, a committee having been appointed to make the necessary arrangements. The trial will be open to all machines manufactured in the province; they may be either single or combined. For particulars, a note addressed, post-paid, to the Secretary, E. A. McNaughton, Esq., Newcastle, will meet with prompt attention.

## THE LEGISLATIVE GRANT TO AGRICULTURAL SOCIETIES.

In reply to renewed inquiries on the subject of the public grant to Agricultural Societies for the current year, we beg to say that it has not been discontinued, though somewhat restricted in amount. We refer to our notice of the subject in the March number of the Journal, page 53. We beg to call particular attention also to the following circular from the Government department of Agriculture, by which it will be seen that it will be to the advantage of each County or Electoral Division Society to obtain as large an amount of subscription as possible before the 1st July:

BUREAU OF AGRICULTURE AND STATISTICS,
*Toronto, March* 28, 1859.

To the Treasurer
County Agricultural Society,

As the Legislative Grant to Agricultural Societies in Upper and Lower Canada is smaller than usual this year, and will not amount to the full sum provided by 20th Victoria, caps. 32 and 49, it is hereby required that all Treasurers of County Agricultural Societies shall transmit their Returns, under Schedule B of said Acts, to the Boards of Agriculture for Upper and Lower Canada respectively, on or before the FIRST DAY OF JULY NEXT; in order that the Grant may be divided at a fixed rate, proportioned to the amount subscribed.

Societies omitting to send in their returns on or before that date, will be debarred from receiving any Grant for the year 1859.

By order,
WILLIAM HUTTON,
Secretary.

## THE TURNIP FLY.

Many devices have been recommended against the attacks of the turnip fly, but no absolute specific appears as yet to have been discovered. Mr. Poppy's scheme for escaping it consists in sowing alternate rows, or occasional patches of common turnips in the midst of the Swedes, in the belief, to which his experience had led him, that the fly would confine itself to the former. He has since found that mustard attracts the fly from both common and Swedish turnips.

Mr. Grey, of Dilston, has for some years past planted field potatoes in rows alternately with Swedish turnips, on land which had been worked, manured, and drilled up in the previous autumn, or very early in the spring, the potato seed being put in with the spade. This he did to preserve the potatoes from the prevalent disease; and the turnips were always the best in the field.

Lord Grey states his experience of the same practice thus:—"It is a curious thing that in one field, where I have tried your experiment of sowing two drills of turnips together between the drills of potatoes, the turnips have entirely escaped the fly, though in all the rest of the field, sown at the same time, they are completely destroyed." It would seem that the potato top is so distasteful to the fly, as to afford protection to plants of another kind growing in immediate proximity.

We were told by a Canadian farmer who has had considerable experience in raising turnips, that he has never wholly lost his crop by the attacks of the fly—and seldom indeed much injured. His practice is to sow very thickly, and as soon as the smooth leaves begin to appear to scatter over the drills a quantity of quick-lime, dry wood ashes and soot, intimately mixed; the proportion of lime being equal to the other two ingredients.

# Agricultural Intelligence.

## SALE OF MR. WETHERELL'S HERD OF DURHAMS.

This interesting event occurred at the end of last month, and that love of Shorthorns, which Durham so bravely fostered when the century was young, received ample illustration in the sale of this celebrated herd.

"It was quite to be expected that the skill and science of its owner would be fully acknowledged by a high average, and prophecy certainly had its fulfilment. Mr. John Wetherell, of Richmond, officiated, and did the most ample justice to the stock; though, after all, there was not throughout the day any really 'slashing rally.' The bidding was, in fact, rather steady than spirited. The great Cobham sale had enabled many of the Shorthorn breeders to stop the gaps which the autumn had made in their ranks; but still, not a few cast a longing eye towards some of the Aldborough plums, and the fact of the average being within two or three shillings of £73 for 48 lots, proved that they quitted themselves like men when they did set foot on Durham soil. Combining the Calf of Young Magic Flower and her dam in one lot, there were 35 female lots, which averaged £77 15s, while the 13 bulls reached £60 4s. It was pretty evident, soon after the leading Shorthorn men assembled at head-quarters at Darlington (where they were welcomed by Mr. Wetherell with a most sumptuous entertainment, at the King's Head) that it was not to be Statesman's day. Reports had been spread that training for shows last year had militated very severely against his efficiency, and this, added to the fact of there being only one thing (Bell Flower) by him, on the list, made many doubt whether he would even touch seventy. So much, in fact, had been said out of doors, that Mr. Wetherell felt it his imperative duty to rise in his carriage on the left of the auctioneer's waggon, and assure the company that the reports were devoid of all truth; and that the fact of so few cows having been served by him, arose from his having left home for the Chester Show, and not returning again till after the Aberdeen one."

The following particulars, indicating how they do these matters in the old country, will be interesting to many of our readers:—

"Although a few snow-flakes fell at last, the day was most lovely, and at an early hour nearly every conveyance in Darlington was chartered for the scene of action, which lies about nine miles from that town, and is reached by a very delightful ride through Melsonby. The Shorthorn men 'stole away" very early for a peep at the lots; and when we arrived there about 11 o'clock, we found the boxes and beautiful meadow below the High Grange one busy herd-mart. A large blue bullock van, inscribed "The Cumberland Ox," was for the nonce turned into a counting-house, and there the cheque and catalogue business of the sale was transacted. Farmers and holiday folk had kept gradually pouring in, and the meadow with its staked ring and waggons, and the gaudy striped Durham horticultural tent, over which the union-jack waved, lent to the whole the air of a great village festival. One celebrated turfite was so struck with the *tout*

*ensemble*, that in the fulness of his heart he confided to us that it looked like the Derby Day, and that he felt quite odd at not having "to make up a book" on the coming events.

On the whole we should guess the assembly at about a thousand. Among them were Lord Bolton, Sir Maxwell Wallace, and the Hon. W. Duncombe; and we also observed Colonels Heeley and Gandy, and Messrs. Jaques, Neasham, Gilpin, Cradock, R. Booth, Swan, Douglas, Torr, Doig, C. Spencer, Drewry, Sanday, Aylmer, Neilson, J. Booth, T. Booth, Atkinson, Knowles, Gambell, Culshaw, H. Smith, Thompson, Carr, Mitchell, Pole, Barclay, Wilson, Thompson, James, Jackson, and several others. The most interesting feature, after all, of the attendance, was that of the octogenarians, Messrs. Wiley and Charge, both of whom were purchasers at the Ketton sale, nine-and-forty years before. They thus furnished two remarkable living links with the past, as one was the fourth-part purchaser of the thousand-guinea Comet, and the other, if we remember rightly, took Midas home. Age has told its tale on the former; but the latter stood by the side of the ring for four hours, with all the energy and spirit of a boy.

About an hour before the sale, people began to find out what the long oval staked ring on the hill-side meant, as the whole eight-and-forty lots were seen, each with an attendant, winding their way in Indian file out of the farm-stead. Mr. Wetherell, on his pony, acted as field-marshal; and in a few minutes they were all arranged in families, and drawn up in a serried line. The word of command was then given, the parade commenced, and a more masterly movement was never executed. In fact, it is one which we should like to see carr ed out at all sales. The pull is in favor of the seller, as the cattle show themselves so well; but at the same time, good judges have an opportunity of seeing them in action, and satisfying themselves better upon little points, than if they wandered hour after hour through their stalls, and "nipped 'em" ever so diligently. They were moving slowly round their quarter-of-a-mile course, when dinner was announced, and in a few minutes three hundred had enrolled themselves as welcome guests, and were doing full justice to a most admirable repast, to which sherry and punch lent the fullest zest. Mr. Torr, of Aylesby, was in the chair; and when he had introduced the health of Mr. Wetherell, that gentleman in a few brief and feeling sentences acknowledged the toast, and led the way to the ring."

We select from the list of prices a few instances of the larger items. *Lady Scarboro'*, a splendid white cow, 8 years old, fetched 200 guineas, as did also *Moss Rose* 6 years old; *Duchess of Northumberland*, 8 years, went off at 100 guineas; *Ayrshire Rose*, 3 years, 165 guineas. The bulls brought lower figures. *Statesman*, 4 years old, fetched 82 guineas; *Alderman*, 2 years, 70 guineas; *Lord Scarboro'*, 125 guineas; and *Lord Aberdeen*, a roan calf, 7 months old, 91 guineas.

To these lots a few Horses succeeded, and when "we left the ground," observes the reporter of the *Mark Lane Express*, to which we are indebted for the preceding information, "some merry peals from the tent, and roars of applause, proved that the Turf was not forgotten, and that a well-known member of the Ring, and owner of race-horses, was on his legs returning thanks. And so the Aldborough herd was dispersed into all lands, and we cannot quit the subject without expressing a hope that its owner will not desert that cause in the evening of his days, for which he has done so much in his prime; and that at many a show (Royal or local) to come, we may have the pleasure of recording his triumphs."

## PERIODICAL FAIRS.

A pretty extensive movement has taken place during the past year or two in the establishment of Fairs at certain localities, for the sale of stock and farm r roduce, and the transaction of other business, to be held monthly, quarterly, or at other stated periods. Such Fairs when thoroughly established and known will, no doubt, conduce greatly to th advantage and convenience of those who have either to buy or sell, and of the agr cultural community ge erally. Amongst those near Toronto, we believe the Richmond Hill Fair has been in successful operatio for several years, and has been found extremely satisfactory in its operation. During the present season quarterly fairs have been started at Weston and Mimico, and we understand that they promise to be successful. As an evidence of how much such fairs are likely to be re-

sorted to, we take from the *Wellington Mercury* the following description of the last monthly Fair, together with the Agricultural Society's Spring Fair, held at the town of Guelph on May 4th:—

"The semi-annual Spring Fair, and also the regular Monthly Cattle Fair, was held on Wednesday last; and proved, as was previously anticipated, the occasion of the largest gathering of business men ever held in this town or county. A considerable amount of good stock was brought into town on Tuesday evening, and, we believe, was speedily bespoke. On Wednesday morning, the large area on the easterly side of the Market House was literally "crammed" with stock of various sorts and quality, and everything worth the attention of either butchers or drovers was soon disposed of at good prices, and cash paid down. There were a few horses offered for sale, but not much business was done in that line, the main sale of stock being confined to cattle in good condition.

There was a considerable amount of business done in the sale of farming implements, new and second hand furniture, fruit trees, grain, and a variety of other articles of commerce or traffic. About mid-day there could not have been less than from four to five thousand people in the Market Square and neighboring streets,- all occupied with business, pleasure, or sight-seeing. The various merchants' stores were crowded during the greater part of the day and many of the proprietors reaped a rich harvest. We have been informed by one merchant doing business in Wyndham Street, that $700 were taken in cash sales over his counters during the day; and another gentleman doing business in the same street, says he has never, in the course of 25 years experience as a business man, had such a busy and "splendid" day as the day in question. Other parties give us information of a similar character."

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## HOPE FARMERS' CLUB.

Monday, April 11, 1859.

The Farmers Club met, but owing to the unfavorable state of the weather, the attendance was not as large as it otherwise would have been, however, some thirty were present. The President, N. Choate, Esq., in calling the meeting to order, stated that the subject was one of the greatest importance to the farmers of Canada, as by the growth of Roots we were enabled to keep a large number of cattle, which is one of the chief sources of wealth to our country, and also it affords an excellent preparation for wheat. He thought the selection of good seed of great importance; he had purchased from different parties, all equally recommended, and found some seed germinate much quicker than others. He considered the preparation of the soil required greater attention. He generally selected the weediest soils for his root crops, and gave them a thorough cultivation, and concluded by calling on Mr. Harris to read an Essay, as follows:—

Mr. Chairman and Gentlemen,—

The subject we have met here this day to discuss, is one of great importance. The important relation which Green Crops bear to other departments of husbandry renders it a question of the highest moment and worthy of the most careful consideration. Upon a due appreciation of the value and a proper regard to the culture of green crops depends in a great measure the successful cultivation of the soil. I shall notice in this paper, only those green crops which are mostly cultivated, and chiefly valuable for winter food for stock. In all good husbandry, the amount of stock kept upon a farm, must bear such a proportion to the number of acres cultivated, as will be sufficient to supply to the soil those elements of fertility which have been extracted by the growth of these crops. Without stock there can be little manure—to expect that what stock will subsist on, the straw raised on the farm, will produce a sufficient supply of manure to maintain the fertility of the soil, is an error, the practice of which accounts in a measure, for the impoverishment of many farms, and these yearly reducing average crops; hence we gather the necessity of a system that will at once be profitable, and maintain the fertility of the soil. By the use of roots we can keep sufficient stock

to supply our markets with meat, and our farms with those rich manure elements, absolutely essential to the growth of plants. Roots are cheaply raised, stored, and fed on the ground; well worked, they yield abundantly; they are not exhausting, but ameliorating to all soils; all animals improve upon them, and retain a healthy state during a season of dry feeding, and make from them a large amount of rich and well divided manure. Here then are all the elements of profit, and that too in a much higher ratio than other crops supply, when fairly disposed of in the market. There is no root better adapted for the feeding of stock than the turnip. The variety that is most cultivated and most profitable, is the Swedish or Ruta baga, of which there are several varieties.

Clayey soils are not so favourable to the growth of turnips; at least, they require a much greater amount of labor in cultivation, than soils of a loamy nature. A deep rich loam is better suited to the growth of any root than clay. In root culture, there are three important things to be attended to. First, the soil should be deep and mellow, if of a clayey nature, the fall ploughing should be deep, in order that the frost may have its mellowing influence upon it. Second, the land should be well manured; well rotted barnyard manure is the only kind with which I have had any experience. Third, the land should be kept free from grass and weeds—the last is very important, and one that is sometimes neglected. The best method of manuring is to deposit the manure and cover it in the drill. The drills should not be less than 30 inches apart. I shall not speak of the broad cast system of sowing, because I believe the drill system to be the most practised, and altogether the best. The after culture is much easier performed in drills, as it can be done mostly by machinery. In drills, the amount of seed required is about a pound and a half. The final distance between the plants should not be less than 10 or 12 inches. All roots require to have ample space for growth. Turnips are subject to the depredations of numerous insects the most destructive of which is the Black Fly. Different remedies are practised by different ones, for preventing the ravages of the fly; some apply the remedy to the seed, and others to the plant. One remedy is to mix the seed with brimstone before sowing; another is to apply soot or ashes to the leaves of the plant while the dew is on, in order that the dust may adhere to the leaves of the plant. These remedies I have found to be very beneficial. Last year, however, a new enemy presented itself, in the grasshopper, more destructive in its effects than all the others put together. From the nature of the animal I do not think that any remedy could be applied to prevent its ravages. The amount of nutritious matter contained in an acre of turnips is more than four times that of an acre of any kind of grain; add to this the advantage of having the ground in a high state of preparation for any kind of grain crop, and we see some of the advantages of turnip growing.

Next in importance to the turnip I would place the mangel wurzel, although not cultivated to the extent which turnips are. It is a valuable root, and probably a greater amount of food could be produced from an acre of mangel wurtzel, if properly cultivated, than any other root, and it has this advantage over other roots; it is a much surer crop, and adapted to a greater variety of soil, and will succeed upon almost any kind of soil that is properly tilled and richly manured. On deep rich loam it succeeds best and with most certainty, and least trouble. Clay soils will produce heavy crops, but require a much greater amount of labor, both in preparing the ground for the seed, and in the after culture, and the same thing may be said respecting clay soils in regard to other roots. The preparation of the soil is much the same as for turnips, but requires a deeper cultivation. The only varieties which I have had experience in growing are the large red or mangled mangel wurtzel, and the yellow turnip rooted. The width of drill should be adapted to the variety intended to be sown—the larger variety requiring wider drills than the smaller varieties. For the larger variety and wider drill I should prefer manuring in the drill, for the smaller varieties and narrow ridges, the broadcast system of manuring is equally as good in soils of a clayey nature, that have a tendency to bake and become very hard; long course manure has the advantage of keeping the ground somewhat open. The distance between the drills should be such as to leave ample space for growth and the performance of the after culture. Thirty inches between the drills, and twelve inches between

the plants, is the least distance in which the ground can be properly worked, and the plants attain their full size. The time of sowing ought not to be later than the month of May. The quantity of seed to the acre ought to be about four pounds —a much smaller quantity would produce the required number of plants, but this amount affords a choice of plant at thinning, and provides against a partial failure of the crop. I am not aware of any machinery for sowing the seed; a common method is to make a ridge or track along the top of the drill, and scatter the seed along by hand. This method is tedious, compared with sowing turnip seed by the use of the drill. Mangel wurzel bear transplanting better than most other plants.

Carrots also are much relished, and are a valuable food for all kinds of animals. The varieties of field carrots with which I had any experience, are the large Orange, and the large White Field Carrot. The soil best adapted for the field carrot is a deep loam; sandy loam, depth and openness of soil is more essential to the growth of carrots than even richness. They are cultivated in much the same manner as turnips or mangel wurzel. Manure for carrots requires to be well rotted. Very fine carrot seed to be good requires to be fully ripe and heavy; yet if two or three years old, will vegetate quite as well as new. Carrot seed remaining time in the ground before germinating, and if the land be inclined to be weedy, is apt to be preceded and choked by weeds; this difficulty may be obviated in a measure, by forcing the seed before sowing, which may be done by keeping the seed in moist sand, eight or ten days before sowing, taking care to keep the sand loose and moist. Being very delicate and tender in the first stages of its growth, it cannot be cultivated to the extent or with the profit of other roots. The earlier in spring the seed is sown, provided the land is suitable, the larger will be the crop, and the better the quality of the roots. Carrots contain more nutriment than either turnips or mangolds, and are valuable for all kind of stock feeding; but their greatest use is for strengthening and medicinal food for horses. They are much relished by the horse, and are often preferred to oats. They are beneficial in all diseases connected with breathing, and have a marked influence on Chronic Cough, and Broken-wind. Horses will do with a much less quantity of hay and oats, and retain a much healthier state, if liberally supplied with carrots, than without them. Carrots are very productive. I have heard of 1,000 bushels to the acre being raised; this altogether exceeds any experience I have had in their growth; but if properly cultivated, on the right kind of soil, I think from four to five hundred bushels to the acre, might easily be grown.

Parsnips are highly productive, and are said to be much better for cattle in certain conditions, than other roots; but as I have not had any experience in their growth or use, I shall not speak of them. But in conclusion, I would recommend that we sow liberally of every kind of root, and not depend upon any one kind. In so doing we provide against a failure of the crops, as it is not likely that all kind of roots will fail in the same year.

Mr. F. Champion thought the cultivation of mangel wurzel, did not receive that attention they should, as they afforded excellent food for milch cows during the Winter months. He said the milk from cows fed on them was richer, and had none of that disagreable taste that it had when the cattle were fed on turnips. He also recommended the carrot as being very valuable for wintering stock. He thought roots succeeded best on light or loamy soil.

Mr. Vanstone said he had been raising roots for a number of years. The largest crop he ever raised was on a heavy clay soil, but preferred loamy soil for their growth. He generally selected green soil for his root crops, as it was less weedy. He also recommended the growth of carrots, as every animal on the farm was fond of them.

Mr. Guy said he had not much experience in the growth of roots in Canada as yet. His crop last year was eaten up by the grasshoppers. In England they generally selected stubble land for their root crops, and manured heavily with Guano. He also recommended sowing the seed on the flat instead of in drills, as it did not suffer so much from drought. He thought we ought to raise more mangel wurzel, as they were excellent to feed stock on in the Spring, when the turnip failed. He said the best variety was the Ox-horn, but he did not know whether we had any of that kind here or not.

Mr. Rosevear said he had not much experience with roots. Thought light soils the best for their growth. He preferred carrots and mangold wurzel to turnips, as being more certain.

Mr. Rider thought the use of artificial manure for the growth of roots important, as it would quicken the growth of the young plant, and consequently the fly would have less time to injure it.

Mr. Oke agreed with Mr. Guy in sowing the seed on the flat; he had tried it last year, and had a good crop. Had raised some mangel wurzels, but considered them not as certain as turnips. Would like to have heard something about the potatoe culture.

Mr. J. E. Champion said he would like to have heard more about the potatoe. He thought the culture of it next in importance to wheat. Would like to have heard from the farmers here present their experience in cutting seed, and went on to argue in favor of cutting the seed potato. Starch being the principle thing in the composition of the potato. But as starch is insoluble in water, it must be changed to sugar or gum, before it can be beneficial to the growth of the embryo plant. He agreed with Mr. Oke in respect to late sown turnips. Thought the bulk much better from late than from early sown seeds. He thought the growth of mangold wurzel of great importance, although he did not like the labor of thinning them, but when raised he thought them preferable to turnips. He also thought much of the objections that he had heard against clay soils, lay with the farmer in his lack of skill, as it is an established fact, that clay soils are richer in manure elements than the much praised light soils.

W. F. Allen said that he preferred the cut potato for seed. Had experimented with potatoes, and found if the seed end was cut off, and the other end planted, with from one to two eyes in it, the yield was more bounteous, and uniform in size; and urged farmers to try the experiment, and report their success. He said seed sowing on the flat had, no doubt, some advantages, as in dry seasons it was nearer moisture; but he preferred the drill ridge, as he thought it invariably better, because the ammoniacal gases are better absorbed by the young plant, and the bulk is more out of ground than if sown on the flat. He concluded by urging farmers not to depend on one kind of root, but raise some of each variety.

Mr. Brock said his farm was not adapted to the growth of turnips. Had raised as good a crop of carrots as any raised in the Township, and thought mixing seeds a good plan, as if one failed another might succeed.

J. K. Allen was of a different opinion, from the last speaker, about mixing turnip or carrot seed; he thought different varieties of turnip or carrot required separate culture, because some varieties were more valuable for spring feeding than others. He agreed with the essay, in importance of the hoe crop, in keeping up the productiveness of our farms. He thought if we did not pay more attention to it, we would be ere long, in the same position as the farmers of the Eastern States, that were compelled to emigrate to find soil of sufficient productiveness to pay for laboring. He thought more attention ought to be given to the culture of corn; he thought the fodder valuable for milch cows, and if the midge destroyed our wheat, we would not starve as long as we had corn. He had helped to raise a crop of corn that yielded at the rate of 88 bushels per acre.

Mr. Curtis advocated hilling or plowing carrots like potatoes. Had tried half of his crop each way, and had a better yield from those he hilled.

W. F. ALLEN, *Secretary.*

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## MANURES, AND THE PRACTICABILITY OF INTRODUCING THE MANUFACTURE INTO CANADA.

BY F. STERRY HUNT, ESQ., M. A. S. D., PROFESSOR UNIVERSITY OF LAVAL, CHEMIST TO THE GEOLOGICAL COMMISSION OF CANADA.

Before describing the results of some enquiries into the value of these manures, and the practicability of introducing their manufacture into Canada, it may be well to explain briefly certain principles which may serve to guide us in the appreciation of the subject. Modern investigations of the chemistry of vegetation have led to a more or less correct understanding of the laws of vegetable nutrition and the theory of manures, and we are all aware how many natural and artificial matters have been proposed as

substitutes for the manure of the stable and farm-yard. Foremost among these ranks the Peruvian guano, composed for the most part of the exuviæ of sea-birds, and employed for centuries by the Peruvians as a powerful stimulant to vegetation. This substance owes its value to the phosphoric acid and ammonia which it is capable of affording to the growing plant; the former element being indispensable to the healthy development of vegetation and entering in large proportion into the mineral matter of the cereals, while ammonia furnishes, in a form capable of assimilation, the nitrogen, which, with the elements of water and carbonic acid, make up the organic tissues of plants.—Besides these essential principles, plants require sulphuric acid, chlorine, potash, soda, magnesia, and oxyd of iron, all of which elements are found in their ashes, and are required for their healthy growth. In a fertile soil all of these ingredients are present, as well as phosphoric acid and ammonia, which last substance is constantly produced by the decay of animal and vegetable matters, and is either at once retained by the soil, which has the power of absorbing a certain portion of it, or is evolved into the air, and afterwards dissolved and brought down by the rains to the earth.

Many of the mineral elements of a soil are present in it in an insoluble form, and are only set free by the slow chemical reactions constantly going on under the influence of air and water. Such is the case with the alkalies, potash, and soda, and to a certain extent with the phosphates. Now, although there is probably no soil which does not yield by analysis quantities of all the mineral elements sufficient for many crops, yet by long and uninterrupted tillage the more soluble combinations of these elements may be all taken up, and the land will then require a certain time of repose in order that a store of more soluble matters may be formed. Hence the utility of fallows.

In my analyses of the soils of the Richelieu valley, in the Report for 1850, pp. 79-90, I have shown, by comparing the virgin soils with those exhausted by continued crops of wheat during fifty years, the proportions of phosphoric acid and magnesia, elements which are contained in large quantities in this grain, have been greatly diminished, but the soil still contains as much phosphate as it has lost, and this only requires to be rendered soluble in order to be available to vegetation.

In forests and untilled lands the conditions of a healthy vegetable growth are seldom wanting; the soil affords in sufficient quantity all the chemical elements required, while the leaves and seeds which annually fall and decay, give back to the earth a great proportion of the elements which it has yielded. In this way the only loss of mineral matter is that which remains stored up in the growing wood, or is removed by water from the soil. Far different is the case in cultivated fields, since in the shape of corn, of fat cattle, and the products of the dairy, we remove from the soil its phosphates, alkalies, and nitrogen, and send them to foreign markets. The effect of tillage becomes doubly exhaustive when by artificial means we stimulate vegetation without furnishing all the materials required for the growing plants. Such is the effect of many special manures, which while they supply certain elements, enable the plants to remove the others more rapidly from the soil. A partial exhaustion of the soil results likewise from repeated crops of the same kind; for the elements of which the cereals require the largest quantity, are taken in smaller proportions by green crops, and reciprocally, so that by judicious alternations the balance between the different mineral ingredients of the soil is preserved.

One of the great problems in scientific agriculture is to supply to the soil the ammonia and the mineral matters necessary to support an abundant vegetation, and to obtain from various sources these different elements at prices which will permit of their being economically made use of. Nowhere but in the manure of the stable and farm-yard can we find combined all the fertilizing elements required, but several of them may be very cheaply procured. Thus lime and magnesia are abundant in the shape of marl and limestones; soda is readily obtained, together with chlorine, in common salt; while gypsum or plaster of Paris supplies at a low price both sulphuric acid and lime. Potash, when wanting, may be easily supplied to the soil by wood-ashes, but phosphoric acid and ammonia are less easily obtained and command higher prices.

An abundant supply of phosphate of lime is found in bones, which when dried contain from 50.0 to 60 0 per cent of mineral matter, consisting of phosphate of lime, with a little carbonate, and small portions of salt of magnesia and soda. The remainder is organic matter, which is destroyed when the bones are burned. This phosphate of lime of bones contains 46.0 per cent of phosphoric acid, and the refuse bone-black of the sugar-refiners usually affords about 32.0 per cent of the acid. The different guanos also contain large amounts of phosphoric acid, and that known as Columbian guano is prin-

cipally phosphate of lime. Various deposits of mineral phosphate of lime have of late attracted the attention of scientific agriculturists. I may mention in this connection the crystalline phosphate of lime or apatite of our Laurentian limestones, and the phosphatic nodules found in different parts of the Lower Silurian strata of Canada, and described in previous Reports

These mineral phosphates are in such a state of aggregation, that it is necessary to decompose them by sulphuric acid before applying them to the soil. The same process is also very often applied to bones; for this end the phosphate of lime in powder is to mingled with nearly two-thirds its weight of sulphuric acid, which converts two-thirds of the lime into sulphate, and leaves the remainder combined with the phosphoric acid as a soluble super-phosphate. In this way, the phosphoric acid may be applied to the soil in a much more divided state, and its efficiency is thereby greatly increased. Even in its soluble form, however, the phosphoric acid is at once neutralized by the basic oxides in the soil, and Mr. Paul Thenard has lately shown that ordinary phosphate of lime, when dissolved in carbonic acid water, is decomposed by digestion with earth, insoluble phosphates of iron and alumina being formed, which are again slowly decomposed by the somewhat soluble silicate of lime present in the soil, and transformed into silicates with formation of phosphate of lime. It is probable that alkaline silicates may also play a similar part in the soil. These considerations show that the superior value of soluble phosphate of lime as a manure, depends solely upon its greater subdivision. A portion of the phosphoric acid in Peruvian guano exists in a soluble condition as phosphate of ammonia.

With regard to the nitrogen in manures, it may exist in the form of ammoniacal salts, or combined in organic matters which evolve ammonia by their slow decay. The ammonia which the latter are capable of thus yielding, is designated as potential or possible ammonia, as distinguished from the ammonia of the ammoniacal salts, which is generally soluble in water, and is at once disengaged when these matters are mingled with potash or quick-lime. Such is the sulphate of ammonia, which is prepared on a large scale from the alkaline liquid condensed in the manufacture of coal-gas. In Peruvian guano a large amount of the nitrogen is present as a salt of ammonia, and the remainder chiefly as uric acid, a substance which readily decomposes, and produces a great deal of ammonia. In fact, this decomposition takes place spontaneously, with so much rapidity, that the best guanos may, it is said, lose more than one-fifth of their nitrogen, in the form of ammonia, in a few months' time, if exposed to a moist atmosphere.

Other manures, however, contain nitrogen in combinations which undergo decomposition less readily than uric acid. Thus, unburned bones yield from 6 to 7 per cent of ammonia, and dried blood, fifteen or sixteen per cent, while woollen rags and leather yield about as large a quantity. In estimating the value of such matters as manures, the difference in the facility with which they enter into decomposition, must be taken into account. Thus, if too large quantities of guano are applied to the soil, a portion of the ammonia may be volatilized and lost, while with leather and wool the decay is so slow, that these materials have but little immediate effect as manures. The nitrogen of blood and flesh is converted into ammonia with so much ease, that it may be considered almost as available for the purpose of a manure as that which is contained in ammoniacal salts.

Attempts have been made to fix the money value of the ammonia and the phosphates in manures, and thus to enable us from the results of analyses, to estimate the value of any fertilizer containing these elements. This was, I believe, first suggested a few years since, by an eminent agricultural chemist of Saxony, Dr. Stockhardt, and has been adopted by the scientific agriculturists of Great Britain, France, and the United States. These values vary of course very much for different countries; but I shall avail myself of the calculations made by Professor S. W. Johnson, of New Haven, Connecticut, which are based on the prices of manures in the United States, in 1857. In order to fix the value of phosphoric acid, in its insoluble combinations, he has taken the market prices of Columbian guano, and the refuse bone-ash of the sugar refiners, which contain respectively about 40 and 32 per cent of phosphoric acid, and from this he deduces as a mean 4½ cents the pound as the value of phosphoric acid, when present in the form of phosphate of lime. This would give $1.44 as the value of 100 pounds of bone-ash, and $1,60 for the same amount of guano, while they were sold for $30 and $35 the ton.

The value of soluble phosphoric acid has been fixed by Dr. Voelcker in England and

by Stockhardt in Saxony, at 12½ cents the pound. This evaluation is based upon the market price of the commercial super-phosphates of lime. Mr. Way, of the Royal Agricultural Society, however, estimates the value of phosphoric acid, in its soluble combination, at only 10½ cents the pound; and Mr. Johnson, although adopting the higher price, regards it as above the true value.

In order to fix the real value of ammonia, Professor Johnson deducts from the price of Peruvian guano, at $65 the ton, the value of phosphoric acid it contains, and this arrives at 14 cents the pound for the price of the available ammonia present. This kind of guano, however, now commands a price considerably above that which serves for the basis of the above calculation; and both Voelcker and Stockhardt fix the value of ammonia at 20 cents the pound. The price of potash as a manure is estimated by Mr. Johnson at 4 cents the pound; but this alkali rarely enters to any considerable extent into any concentrated manures, and may therefore be neglected in estimates of their value.—*Journal of Board of Agriculture of Lower Canada.*

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## JUDICIOUS CULTURE MAY TEND TO IMPROVE CLIMATE.

It has hitherto been a prevailing opinion with the many, that the constitution of plants must be altered and adapted to climate, with taking into consideration the practicability of altering or adapting, by artificial means, the climate to the constitution of plants. The first process has been called acclimatizing; but we shall endeavor to show, that, by familiar expedients, the climate may be altered so as to suit the habits and requirements of the vegetation.

It is absolutely necessary to consider the conditions of the atmosphere in which plants live and move, and have their being; but, as regards the latter, the generality are apt to omit, or overlook, that the conditions and temperature of the soil in which the roots of plants and trees are placed and permeate, are of at least as much importance, if not more, to their successful cultivation.

The root or underground extension of the plant, is quite as sensitive to the extremes and modifications of moisture, dryness,—of heat and cold,—as the branches, leaves, fruit, and flowers, that wanton in the sunshine, or wither in the inhospitable wind. The summer shower is as grateful to the buried rootlets, as to the verdant leaves; and unhealthful influences, or fostering warmth, which, the one or the other, withers or expands the gay blossoms, are not without inflicting kindred influences on the responding and suffering radicles; so that the breath of spring and gentle breezes of summer affect equally the portions of the plant which beautify the landscape, or seek for sustenance from amongst the ingredients composing the body of the soil in which it stands.

It follows, then, that the regulation of the circulation of air underground, and the condition of its volume, must influence materially the growth of the vegetation on its surface; and it also follows, that the amount of contained moisture, and its conditions, must equally affect the growth of the plant it bears. But we have it in our power, by judicious culture, to regulate these conditions; and thus far is it in our power to alter the climate to suit the habits and conditions of the various agricultural and other plants, the subjects of cultivation.

Now this result is to be obtained by securing the thorough working and comminution of the soil, for the purpose of æration, or the introduction and distribution of atmospheric air through the cells—and, by thorough drainage, so as to secure the removal of superabundant, and therefore, injurious moisture; for when the interstices between the particles of earth are filled with water to the expulsion and exclusion of the air, except the small portion contained in the superfluous water itself—the plants, or their rootlets rather, are deprived of the most essential part of their food. Remove the superabundant water, and air takes its place, holding in suspension a sufficiency of moisture for the subsistence of the roots, and the system of growth dependent upon them for nourishment; for be it clearly understood, that it is not water *in a fluid state*, which is generally preferred or appropriated by plants,—but rather when it has assumed the state of air-borne vapor, it becomes adapted for facile assimilation.

But it is also noticeable, that drained land, in summer, may be from 10° to 20° Fahrenheit warmer, than when saturated and gorged, so to speak, with moisture; so that

thorough drainage has the effect of *raising* the temperature of the soil, and we thus have it in our power to improve, if we may so express ourselves, the underground climate. It has been ascertained that heat cannot be transmitted downwards through water, therefore land injuriously saturated with moisture must proportionally decrease in temperature. On the contrary, if the soil be open, and not injuriously saturated, the warm rain descends through the cells and pores of the earth, carrying with it the high temperature it has gained at the surface—imparting it to the soil as it passes onwards and downwards, and thus distributes that increase of temperature—familiarly called "bottom heat"—so essential to the luxuriant growth of the various plants, the subjects of culture. So that deep draining, when efficiently conducted, modifies and alters the underground temperature to a very appreciable extent; and thorough culture, and a due separation or comminution of the constituent particles, open the soil at once, for the more easy extension of the rootlets, and permit of the free access of the air; and when both these objects are attained, an appreciable improvement will be speedily apparent, both in the vigor and luxuriance of the vegetation. The plants will be more able to resist the action of unhealthy influences—less subject to rust or mildew—less easily affected, retarded, or destroyed by the attacks of insect enemies—less likely to fall a prey to drought; the robustness and vigor of their growth rendering them superior to the injurious influences which might otherwise overpower their recuperative energies. J. A.

—*Ibid.*

## CULTIVATION OF MUSTARD.

There are two kinds of mustard used in commerce—*Sinapis nigra*, or black mustard; and *Sinapis alba*, or white mustard. The former, which is commonly termed brown mustard, is the species that furnishes the valuable condiment used at table, the white mustard being chiefly grown for salad in the gardens, and for the sake of the oil it contains. The oil is valuable for burning, as it does not freeze; it is also used in the manufacture of soap.

The following method of cultivating the black or brown mustard has been recommended in agricultural works:—The land having been duly prepared in the winter, as for other spring crops, sow moderately thick, either in drills from six to twelve inches apart, according to the quality of the soil, or broadcast, harrowing in the seed. When the plants are two or three inches high, thin them moderately where they stand too thick, and keep them clear of weeds. They will soon run up to stalks, and will be ripened in July, August, or September, according to the time of sowing, and the favorableness of the season. They should then be cut or pulled up, and tied in sheaves like wheat, and left on the stubble a few days, protected, if possible, from rain, which does much injury to it, and causes it to sprout. It is a very exhausting crop, and when once sown is difficult to be eradicated, as it readily shells when ripe, and like its relative the charlock (*Sinapis arvensis*) will retain its vitality an indefinite period. It contains 28 per cent. of volatile oil, heavier than water.

The cultivation of the white mustard for the use of the table is too well known to require stating here. When grown for a crop of seed for manufacturing purposes, the cultivation does not differ from that of the brown mustard. It is less pungent than the latter, and the oil expressed from both is mild and insipid, and as free from acridity as that of almonds.—*Mark Lane Express.*

## BUTTER MAKING.

A lady who takes the prize for butter in a celebrated dairy county in Canada, furnishes us with the following description of her method of making butter:—

1st. Have a good milk-house with stone or hard earth floor, with only one window placed opposite the door, and that screened so as not to admit dust or flies; this room should be situated as far as possible from manure heaps or anything offensive, and be kept quite clean.

2. Have the usual shallow earthenware, tin or zinc pans, kept scrupulously clean. After use these dishes should be thoroughly washed, and, before using again, should be scalded and left to cool.

3. Strain the new milk carefully into these dishes, and set past till the cream be cast up, not exceeding, in summer, 24 hours. The sooner the cream is churned the better, but it should not, in summer, stand more than two days.

4 The heat of the cream in churning should on no account be over 65 degrees. The reason that so much butter is so white and inferior is that many churn at too high tem erature, perhaps 70 or 75 degrees. If the cream be above 65, reduce the temperature with cold spring water. When warmer, it churns easier and sooner, but it does not make nearly such good better. In no case should the process of churning last less than 40 minutes, and often an hour, in order to have good butter. Thus it will be seen that a thermometer is a necessary addition to the dairy, in order to make good better, and every farmer should buy one.

5. The washing process is of extreme importance, as upon it the keeping of the butter depends. On taking the butter out of the churn, place it in a tub and wash with clear spring water; pour off the water, which will be like milk; then hair the butter carefully, and wash it twice, making three washings in all, until the water comes away quite clear.

6. The salting process is a very delicate and important one, which is generally greatly abused. The finer and purer the salt the better. The ordinary American or Liverpool salt gives butter a very inferior character. Nothing but the purest should be added, and that should be well worked in. Upon no account put too much salt; great dishonesty is practised in this respect.

7. Packing. The keg or tinnet should be made of white ash, or other suitable wood, thoroughly seasoned; but no elm sap wood should be employed. The butter should be packed closely so as to leave no air holes, and the whole quantity in a package should be alike in color and quality.

Butter made as above will keep a year perfectly sweet, and will bring, on the average, at least 2 cents a pound, perhaps 3 or 4 cents a pound more than butter made in the ordinary careless way.—*Montreal Witness.*

# Horticultural.

## STREET TREES.

BY PROFESSOR J. LINDLEY.

There are three new roads leading out of London, England, which are about to be planted with shade trees by order of the Royal Commissioners. These gentlemen are reported to have decided on planting these roads with the European Linden or Lime tree, or what we would call the Basswood. Against this, Dr. Lindley protests in the following very excellent article, which gives many useful hints as to the qualities of trees suitable for streets and ornamental grounds and parks, and which is likely to prove as useful to street commissioners here as on the other side of the Atlantic.

It is reported that the Royal Commissioners for 1859 are about to plant their three great roads, viz: Exhibition Road, Cornwall Road, and Prince Albert's Road, with Lime trees. Notwithstanding the beauty of this tree, we cannot but hope that the statement is erroneous, and that an opportunity will not be lost of showing what effect can be produced by something less hacknied. Surely, it will be highly discreditable to this, the greatest horticuitural country in the world, if nothing more can be found for avenues than trees employed in the days of the Tudors. For forty years very large sums have been annually spent in procuring new hardy plants from every accessible climate, and it will reflect little credit upon the advisers of the Royal Commissioners, if they should prove so poor in resources, as to have in 1859 nothing better to recommend for avenues than might, indeed, have been had at the Conquest.

What is required for avenues near London? Trees that are durable, have handsome foliage, that grow fast, that will bear occasional winter fogs, and the long east winds that prevail here in the spring. The handsomest, the fastest growing, and the

latest in leafing, because the least likely to suffer from cold northeast winds, are the best for this purpose. Elm trees, Lime trees, and Beech trees, are most in use because they were the trees of our forefathers, and people in country places when avenues were made, even if they had had other trees, would not have thought of looking beyond what they could find in their own neighborhood. But that Elm trees and Lime trees have formidable rivals is sufficiently proved by the glorious Horse Chestnuts of Bushy.—Avenues of Horse Chestnuts at Kensington would indeed be far preferable to Lime trees, if we must trot along at the pace of pack-horses.

But are we to disregard everything that modern experience has shown to be suitable for avenues, except the trees just mentioned? Have North American Maples no merit, nor Sweet Chestnuts, nor Oriental Planes, nor any of the Oaks, nor the glorious Tulip trees, nor graceful Ailanths, nor the noble American Black Walnuts? Surely among all these something may be found more worthy the Royal Commission roads than Elms, Beeches, Limes, and even Horse Chestnuts. Elms indeed are not to be thought of; it would never do to plant by road-sides trees so rotten in their old age as to be dangerous to passers-by. The experience of Hyde Park is a warning. Nor would Beeches answer, because of their invariable secretion of honey dew, which would gum London soot to their leaves and speedily throw them out of health.

It may be asked why Spanish Chestnuts are not selected, trees far more beautiful than Lime, both in foliage and flower, graceful in youth, majestic in old age, and possessing every quality that is required. True sessile-fruited Oaks, among the finest of trees, will bear London atmosphere, and might be associated with Spanish Chestnuts alternately. Oriental Planes, than which none are hardier, none more umbrageous, none better suited to our Parks, with good management will grow much more than a foot a year in height, and endure for ever. These things are well known to all men.

Among less common species there is the Acer eriocarpum, commonly called Sir Charles Wager's Maple, one of the fastest growing of American trees, remarkable for its airy foliage, light green in spring, rich rose color in autumn. With it might alternate the Acer machrophyllum of Oregon, a specimen of which in even unfavorable ground has made nearly two feet in height annually, and has now, at the end of about 28 years, a girth of 6 feet. Nothing could be more striking than the massive deep green foliage of the latter associated with the lighter shade of the former.

Are Turkey Oaks to be passed by? They grow faster than the Lime, and owing to the thinness of their foliage are exceedingly graceful.

Then there are Tulip trees. Let any one look at the specimen on Ham Common, and say whether such magnificent vegetation is to be disregarded. A Tulip tree in land no better than that of the Cornwall Road grows as fast as any Lime.

Above all things we should regret to find the claims of Ailanthus and the American Black Walnut passed by. These trees are so much alike in general aspect that they may be spoken of together. Each will grow as fast as the fastest Horse Chestnut, has noble rich green pinnated leaves, and the first in good seasons is resplendent with crimson fruit. Surely they deserve to be thought of.

Were each of the three avenues now to be planted furnished with its own peculiar trees two sorts in each case planted alternately, an admirable effect might be obtained by some such arrangement as the following: Cornwall Road, Tulip trees, alternating with Acer Eriocarpum; Exhibition Road, Black Walnuts and Acer macrophyllum; Prince's Road, Turkey Oaks, or sessile-fruited Oaks and Spanish Chestnuts. If it should be said that such trees, of the requisite height, are not procurable in England, we have two answers. 1st. There are more nurseries than the English; the Continent and United States are within easy distance. 2d. Let the planting be deferred until trees of the requisite height can be raised in nurseries under a contract to supply them at a future time.

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## AMERICAN TREES AND TREE-PLANTERS.

There has always been a party in this country with views and feelings opposed to the destruction of our native forests. At first small and little heeded, this party has gradually increased, until it now numbers its thousands. Their fitting title would be that of Philarboristsor Tree-lovers. Their doctrine is that trees have economic and æsthetic uses which entitle them to be respected in the forest, and largely planted in

orchards, avenues and parks. They claim that trees make generous returns for the room they occupy. The close relation of trees to the public prosperity, is seen in the present difficulty of finding sufficient water for the Erie Canal. The enlargement of the canal and its business requires more water than formerly, when, in fact, the supply is alarmingly deficient. There is one reason for this deficiency in the wasteful cutting down of forests on the hill-sides, whence flow numerous small streams that unite to fill the vast aorta of our inland commerce.

The destruction of trees not only diminishes the absolute quantity of rain, but prevents its accumulation in springs, shaded valleys, and swamps. A bare hill side will shed water like a roof. Let the trees remain as nature intended, and the same soil becomes a sponge, absorbing the rain as fast as it falls, and sending it down little by little to the thirsty lowlands.

In the early stages of our country's growth, little attention was paid to the culture of trees. The names of the pioneer Philarborists are few, and their chief encouragement seems to have come from across the Atlantic. There is a queer old house still standing on the banks of the Schuylkill, that might be called the Cradle of American Botany. It was built by John Bartram, who founded the first Botanic Garden in this country. Bartram was an honest Quaker, little noticed at home, but honored abroad, as a collector of rare trees and plants. He kept up an active correspondence with eminent savans in England. Dr. Darlington's recent publication of these letters created a pleasant effervescence in the literary circles of Europe and America. Andre Michaux, and his son Francis Andre Michaux, should be remembered. They were Frenchmen, and served the French Government. Yet most of their scientific labor was performed in this country. They were heartily attached to American institutions. They sent home about sixty thousand trees and plants, with many boxes of seeds, as the result of their searching in our nation's wilds. The younger Michaux lived to be eighty-five, and spent his last days in planting a group of American trees. His North American Sylva, recently edited by J Jay Smith, of Philadelphia, has no equal on the subject which it treats. He bequeathed $22,000 to societies in Boston and Philadelphia, for special purposes connected with the propagation of useful trees.

Among the early Pomologists, William Coxe, of New Jersey, stands foremost. His work on the Cultivation of Fruit-Trees was prepared without much help from previous authors, and is still appealed to as reliable authority. Mr. Coxe sent scions of the *Seckel* Pear to the London Horticultural Society, of which he was soon after elected a member.

The name of Downing is dear to every lover of rural improvement. His Treatise on the Theory and Practice of Landscape Gardening, published in 1841, gave him a solid and brilliant reputation on either side the Atlantic. The book was thoroughly practical, yet all alive with poetry and sparkling sentiment. It was read like a romance, and removed the scales from eyes previously blind to the beautiful in trees and landscapes. The youngest son of a gardener on the Hudson, Downing was so reserved in his habits, that few suspected the rare qualities of his mind, before his appearance as an author. He had grown up as a neglected seedling might have done in an out-of-the-way corner of his father's grounds, until its rich ripe fruit caught the gaze of passers-by, and pregnated the air with daintiest aroma. Downing was thought by some to be unsocial and haughty; yet there never lived a man more intensely American. It was a favorite idea with him that America was entitled to a style of Architecture decidedly its own, and suited to our climate, scenery and habits. The working out of this idea is clearly seen in his Essays and drawings. He was partial to American trees, and often exposed the folly of preferring such exotic impositions as the Ailantus and the Abele, to the Maple, the Elm, and the Liriodendron. His whole life, genius and ambition were devoted to the elevation of his countrymen, to the improvement of their homes, and the multiplying of their ennobling pleasures. His premature death, in 1852, so painfully remembered with the burning of the *Henry Clay*, was an irreparable loss to American literature and art.

Living Philarborists are doing much, at this time, to promote the knowledge and culture of desirable trees. Never was there a period when so much of capital, enterprise and research was given to this most important branch of national industry. The peculiar and promising feature of the present enthusiasm in tree-culture, is that its friends are forming themselves into groups, for particular studies and experiments. In the cultivation of Pears, Marshall P. Wilder, of Dorchester, Mass., takes the lead.

He has rendered his countrymen an important service by testing, under his personal inspection, hundreds of important varieties, a large proportion of which were found to be unsuitable for this country.

Henry W. Sargent, of Fishkill, has honorably won the position of an oracle of Evergreens. Ornamental planters are waiting with impatience for the promised work that shall embody the results of his large experience with Evergreens imported from foreign nurseries.—*Ex. from* Prof. North's *Address before N. Y. State Agricultural Society.*

The Peach in Illinois.—North of about 36° the peach tree is always more or less tender; and were it not for its habit of bearing while young, it would be folly for us of the North to plant it; and yet no fruit pays better when you get it; and up here we must always have fruit when there are flowers. So far the fruit buds have been winter killed much oftener than the tree; though I have seen three large crops and some partial ones in this vicinity, and a few trees 12 to 15 years old, previous to 1856, when *all* were killed; and for that matter there was a pretty general winter-killing once before—about 1842. One good crop may be counted on even here, and that will pay for the stress and more too. Far south it is the most profitable fruit in general cultivation.

The peach likes a warm, light loam, deep and dry, not so stiff as good pear soil, but much like it otherwise. It will do well, however, on any well elevated grounds south; while here the highest, driest, and "poorest" prairie knolls or hazel and tree-sprinkled "barrens" should be selected, when practicable; and soil that is "poor" in nitrogenized matters always; for a large growth and a late growth of wood are to be avoided. On such soils the peach is perhaps better without underdrainage than any other fruit tree. Best plan on or quite near the surface, however, and raise the earth over the roots to support the tree in its place. Plant trees to make low heads, and never more than one year old, if you can well avoid it.

The nectarine, which is but a smooth skinned peach, comes in here. For varieties you can depend on the books and catalogues, always remembering that some good sorts for the South will not ripen here.—J. A. Kennicott, *in Prairie Farmer.*

Strawberries on the Prairie.—This fruit will grow on any good deep soil, if not too wet; and yet it seems to like permanent moisture. Perhaps a deep, moderately rich, clayey loam, is best. Virgin prairie, broken up in May or June, trenchplowed in October or November, and set in vines the next March or April, has given large and cheap crops. Manure is seldom needed, and deep culture rarely fails to pay. *Necked Pine* and *Large Early Scarlet* are among the hardiest and easiest to cultivate on the prairie, but are scarcely so desirable as many of the larger sorts, hardy enough with a slight winter protection north, and mostly quite hardy south. For a choice of sorts, consult books and periodicals. *Hovey's Seedling, Burr's New Pine, McAvoy's Superior, Crimson Cone, Longworth's Prolific, &c.*, have earned a good reputation West, and some of the newer sorts, like *Wilson's Albany, &c.*, are very promising here.—J. A. Kennicott, *in Prairie Farmer.*

Remedy for the Curculio.—"To one pound whale oil soap add four ounces of sulphur. Mix thoroughly, and dissolve in twelve gallons of water.

To one half-peck of quicklime add four gallons of water, and stir well together. When fully settled, pour off the transparent lime water, and add to the soap and sulphur mixture.

Add to the same, also, say four gallons of tolerably strong tobacco water.

Apply this mixture, when thus incorporated, with a garden syringe, to your plum or other fruit trees, so that the foliage shall be well drenched. If no rains succeed for three weeks, one application will be sufficient. Should frequent rains occur, the mixture should be again applied until the stone of the fruit becomes hardened, when the season of the curculio's ravages is past."

The above, being highly recommended, is copied from the *N. Y. Observer.* A correspondent of that paper, having tried the preparation on part of his trees, secured a good crop of fine fruit, while on those to which it was not applied no fruit was matured. Will not fruit growers generally give it a faithful trial the coming season, and publish the result? I intend to test its efficacy, and will report accordingly.—John Bradfield, *in Genesee Farmer.*

Does it Pay to Hire a Gardener.—I am a farmer with 150 acres of cleared land, with orchards, &c., as good as my neighbors, but I was not quite satisfied with my garden. It was, to be sure, as good as those of my neighbors, but I wished the garden better. The soil and situation were good, I had worked it, yet I was not suited. I hired a gardener in April, 1857, and on keeping a correct account of loss and gain found myself minus some $17. In looking back, I thought I could see where I had missed it, and not to be discouraged at one failure, I made a second attempt in 1858. This year I find the debt and credit pages are quite different from the former. I now find myself the gainer to the amount of $23 50 in 1858, besides the constant supply and use of many articles for the table, not taken in the estimate. Then the great enjoyment of the many delicacies my garden yields when a friend visits me, and occasionally to make a present of a dish of strawberries, gooseberries, or a few melons, as circumstances seem to justify, gives such a true relish to life, that I shall pay more attention to my garden in future.

I believe my brother farmers are the losers by neglecting the garden. I know that I have lost by such neglect, and by the well known rule, judge others by myself. The garden pays full as well as the field. At or near the close of 1856, you may hear from me further on this subject.—A Canadian Farmer, *in Genesee Farmer.*

Raising Early Plants.—I notice in the March number of the *Farmer* a plan for raising early plants in the shells of turnips, and no doubt they would answer a very good purpose; but a much more complete way for raising early plants for transplanting in the garden, is to make small boxes of common siding, say seven inches wide. Plane one side of the board, which is to form the inside of the box, then make your boxes from six to eight inches across the top, so as to suit the size of the plants that you want to put in them, and about one inch larger across the bottom, so that the box will slip up from the hill without any difficulty. These boxes are to be made without any bottom, and should be placed upon a shingle or thin piece of board, with one end shaved thin, so that it can be drawn out from under the box without disturbing the dirt or the roots of the plant. I have used this kind of boxes for the last two years, and find that they answer the purpose to my entire satisfaction. The boxes when in use should be kept in the hot-bed or in the kitchen; and if kept in the latter place, they should be kept as near the top of the room as possible, upon a shelf fixed for the purpose, as the heat is always greater near the top of the room than in any other place, and also more regular.—Thos. C. Hagaman, Bronte, C.W., March 24, 1859. —*Genesee Farmer.*

Mulching is one of the best means of preventing mildew on the gooseberry, and it is quite probable that sulphur scattered on the leaves will be as beneficial as it is in checking the mildew on grapes.

# Miscellaneous.

## AN EDUCATED WOMAN.

(*From the Farmer's Journal, Utica.*)

The following beautiful sketch from the pen of that earnest writer on agriculture, Henry Coleman, Esq., we take pleasure in presenting to our readers. It appears in his works, and serves to illustrate more forcibly one of the causes which has always served to advance European Agriculture. The women of England honor this science, and thousands of them follow the example of their illustrious Queen, by educating themselves in the science of the earth, and practically test its value by laboring to beautify home.

A Pencil Sketch.—I must claim the indulgence of my readers, if I give them an account of a visit in the country so instructive, so bright, so cheerful, that nothing but the absolute breaking up of the mind can ever obliterate its record, or dispel the bright vision from my imagination. I know my fair readers, for with some such I am assured my humble reports are kindly honored, will feel an interest in it, and if I have any unfair readers, I beg them at once to turn over the page. But mind, I shall utter no name and point to no place; and if I did not know that the example was not altogether

singular, and therefore would not be detected, I should not relate it. I know very well, as soon as I return to my native land, if heaven has that happiness yet in store for me, a dozen of my charming friends—God bless them!—with their bright eyes and gentle entreaties, will be pressing me for a disclosure; but I tell them beforehand, I am panoplied in a stern philosophy, and shall remain immovable.

I had no sooner entered the house where my visit had been expected, than I was met with an unaffected cordiality, which at once made me at home. In the midst of gilded halls, and hosts of liveried servants, of dazzling lamps and glittering mirrors, redoubling the highest triumphs of art and taste; in the midst of books and statues and pictures, and all the elegances and refinements of luxury; in the midst of titles and dignities and ranks, allied to regal grandeur—there was one object that transcended and eclipsed them all, and showed how much the nobility of character surpassed the nobility of rank, the beauty of refined and simple manners all the adornments of art, and the scintillations of the soul, beaming from the eyes, the purest gems that ever glittered in a princely diadem. In person, in education and improvement, in quickness of perception, in facility and elegance of expression, in accomplishments and taste, in a frankness and gentleness of manners tempered by a modesty which courted confidence and inspired a respect, and a high moral tone and sentiment which, like a bright halo, seemed to encircle the whole person, I confess the fictions of poetry become substantial, and the beau ideal of my youthful imagination realised.

But who was the person I described? A mere statue to adorn a gallery of sculpture? a bird of paradise, to be kept in a glass case? a mere doll, with painted cheeks, to be dressed and undressed with childish fondness? a mere human toy, to languish over a romance, or to figure in a quadrille? Far otherwise; she was a woman in all the noble attributes which should dignify that name; a wife, a mother, a housekeeper, a farmer, a gardener, a dairy-woman, a kind neighbour, a benefactor to the poor, a christian woman, "full of good works and almsdeeds which she did."

In the morning I first met her at prayers; for, to the honor of England, there is scarcely a family among the hundreds whose hospitality I have shared, where the duties of the day are not preceded by the services of family worship; and the master and the servant, the parent and the child, the teacher and the taught, the friend and the stranger, come together to recognise and strengthen the sense of their common equality in the presence of their common Father, and to acknowledge their equal dependence upon His care and mercy. She was then kind enough to tell me, after her morning arrangements, she claimed me for the day. She first showed me her children whom, like the Roman mother, she deemed her brightest jewels, and arranged their studies and occupations for the day. She then took me two or three miles on foot to visit a sick neighbor, and while performing this act of kindness, left me to visit some of the cottages upon the estate, whose inmates I found loud in their praises of her kindness and benefactions. Our next excursion was to see some of the finest and largest, and most aged trees in the park, the size of which was truly magnificent; and I sympathised with the veneration which she expressed for them, which was like that with which one recalls the illustrious memory of a remote progenitor.

Our next visit was to the greenhouses and gardens; and she explained to me the mode adopted there of managing the most delicate plants, and of cultivating, in the most economical and successful manner, the fruits of a warmer region. From the garden we proceeded to the cultivated fields; and she informed me of the system of husbandry pursued on the estate, the rotation of crops, the management and application of manures, the amount of seed sown, the ordinary yield, and the appropriation of the produce, with a perspicuous detail of the expense and results. She then undertook to show me the yards and offices, the byres, the feeding-stalls, the plans for saving, and increasing, and managing the manure, the cattle for feeding, for breeding, for raising the milking stock, the piggery, the poultry yards, the stables, the harness rooms, the implement rooms, the dairy. She explained the process of making the different kinds of cheese, and the general management of the milk, and the mode of feeding the stock; and then conducting me into the bailiff's house, she exhibited to me the Farm Journal, and the whole systematic mode of keeping the accounts and making the returns, with which she seemed as familiar as if they were the accounts of her own wardrobe.

This did not finish our grand tour; for, on my return, she admitted me into her boudoir, and showed me the secrets of her own admirable housewifery, in the exact accounts which she kept of everything connected with the dairy and market, the table, the drawing-room, and the servants hall. All this was done with a simplicity and

frankness which showed an absence of all consciousness of any extraordinary merit in her own department, and which evidently sprang solely from a kind desire to gratify curiosity on my part, which, I hope, under such circumstances was not unreasonable. A short hour after this brought us into another relation; for the dinner bell summoned us, and this same lady was found presiding over a brilliant circle of the highest rank and fashion, with an ease, elegance, wit, intelligence and good humor, with a kind attention to every one's wants, and an unaffected concern for every one's comfort, which would lead one to suppose that this was her only and her peculiar sphere. Now I will not say how many mud-puddles we had waded through, and how many dung-heaps we had crossed, and what places we explored, and how every farming topic was discussed; but I will say that she pursued her object without any of that fastidiousness and affected delicacy which pass with some persons for refinement, but which in many cases indicate a weak if not a corrupt mind. The mind which is occupied with concerns and subjects that are worthy to occupy it, thinks very little of accessories which are of no importance. I will say, to the credit of Englishwomen (I speak of course of the upper classes), that it seems impossible that there should exist a more delicate sense of propriety than is universally found among them; and yet you will perceive at once that their good sense teaches them that true delicacy is much more an element of the mind, in the person who speaks or observes, than an attribute of the subject which is spoken about or observed. A friend told me that Canova assured him that, in modelling the wonderful statue of the Three Graces, from real life, he was never at any time conscious of an improper emotion or thought; and if any man can look at this splendid production, this affecting embodiment of a genius almost creative and divine, with any other emotion than that of the most profound and respectful admiration, he may well tremble for the utter corruption within him of that moral nature which God designed should elevate him above the brute creation.

Now, I do not say that the lady to whom I have referred was herself the manager of the farm; that rested entirely with her husband; but I have intended simply to show how grateful and how gratifying to him must have been the lively interest and sympathy which she took in concerns which necessarily so much engaged his time and attention; and how the country could be divested of that dullness and *ennui*, so often complained of as inseparable from it, when a cordial and practical interest is taken in the concerns which necessarily belong to rural life. I meant also to show (as this and many other examples which have come under my observation emphatically do show), that an interest in and a familiarity with even the most humble operations of agricultural life, are not inconsistent with the highest refinements of taste, the most improved cultivation of the mind, the practice of the polite accomplishments, and a grace and elegance and dignity of manners, unsurpassed in the highest circles of society.

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## THE ANALYSIS OF SOILS.

A few years since very high expectations were raised of the great practical benefits to agriculture from chemical analysis of soils. The earlier analyses were little to be depended upon, but of late they have been conducted with much greater care and scientific exactness. The most minute ingredients of soils have been strictly determined by measure and weight. Yet with all this exactness and deep scientific research, it would be difficult to point out a single instance in which this mere chemical analysis of the soil, has been of much direct benefit to practical agriculture. Some light has no doubt been thrown thereby upon the hidden processes of vegetable nutrition, and the composition and requirements of plants; but the chemist has been hitherto unable by his most refined analysis, to give the farmer such precise instructions as to the preparation of the soil for special crops, as to ensure in all cases a successful result. The fact is, pure science can do but little for agriculture, unaccompanied by *experience*. We would not underrate the service which chemistry has already done to agriculture, particularly in relation to the nature and composion of manures, and in her onward progress great triumphs are no doubt in store. But it should always be borne in mind that the mechanical condition and preparation of the soil, as well as its chemical composition, together with the state of the weather and other conditions, have a great influence on the

amount and quality of the crop. The following remarks of a writer in the *North British Agriculturist* are worth consideration:—

"To analyse a soil, and determine from the results the degree of its fertility and its adaptation to particular crops, was one of the first problems placed before the agricultural chemist, and from its solution the greatest advantages to agriculture were anticipated. As yet these expectations have not been realized, nor can this be considered as a matter of surprise. The progress of our knowledge, in place of simplifying, has complicated the question, and has shown that the fertility and infertility of a soil is dependent upon a variety of circumstances, of which its chemical composition is only one. Instances exist in which the barrenness of a soil can be distinctly traced to the deficiency of some one or other of the necessary elements of plant life; but in other cases, a barren and a fertile soil may present an almost perfect similarity in composition, and contain all the elements required by plants in proportion known to be amply sufficient for their healthy growth. The difficulty of explaining these facts has been increased, just in proportion as soil analyses have become more minute, for their tendency has been to show that the instances in which infertility is due to the absence of any of the essential constituents of the plants are comparatively rare, and that quantities which we are apt to overlook as totally unimportant, may be amply sufficient for all that is required. One-tenth of a per cent of potash, soda, or phospheric acid, may appear a quantity so small that the chemist might be justified in neglecting it, and yet a soil containing these quantities is capable of affording an abundant supply of these elements to many generations of plants; and notwithstanding this there are soils containing a much larger quantity of these substances, which, if not absolutely barren, are only capable of supporting a very scanty vegetation. These facts have rendered it obvious that it is not merely the presence, but the accessibility, so to speak, of the constituents of a soil that must be determined; and when the chemist, in addition to the exact proportions of these minute quantities, is required to ascertain the various forms of combination in which they exist, it is natural that he should show little disposition to enter upon a branch of investigation of such complexity, and which in the present state of our knowledge is likely to give only negative results.

The difficulties of this investigation have been so fully recognized by Liebig, that he has pronounced it impossible to arrive at a satisfactory knowledge of the composition of the soil and its suitableness for particular crops, by analysis alone."

## SHOEING OF THE HORSE.

The observation, "we often transpose the order of our labors," reminds me of a mode adopted in the shoeing of the horse, which I once witnessed, and which is, I believe, of importance sufficient to deserve notice in the pages of your valuable and very interesting work. It occurred at the town of Croydon, near London, which is known as the centre of the Stag-hunt, so well attended by the whole country around, and especially by the high-bred bloods of London; and where may be seen a field of the best horses in the whole world—many of them worth their five or seven thousand dollars.

As I once passed through this town, one of my horse's shoes became loose, and I went to the shop of a smith, named Lovelace, to get it fastened; the shoe was nearly new, and had become loose in consequence of the nails having drawn out of the hoof, although they had been clinched in the manner universally practised. The smith remarked that all the other shoes were loose, and would soon drop off, when I requested him to take them off and replace them, and then did I perceive the different mode which he adopted for fixing them, which I will here detail. As fast as he drove the nails, he merely bent the points down to the hoof, without, as is customary, twisting them with the pincers; these he then *drove home*, clinching them against a heavy pair of pincers, which were not made very sharp; and after this had been very carefully done, he twisted off each nail as close as possible to the hoof; the pincers being dull, the nail would hold, so as to get a perfect *twist round* before it separated. These twists were then beaten close into the hoof, and filed smooth, but not deep, or with the view to rasp off the twist of the nail. "Oh ho!" said I, "I have learnt a lesson in horse-shoeing." "Yes," said he, "and a valuable one; if I were ever to lose a sin-

gle shoe in a long day's hunt, I should have to shut up my shop; my business is to shoe horses belonging to the hunt, and the loss of a shoe would be the probable ruin of a horse worth, perhaps a thousand pounds; but I am never fearful of such an accident." "Simply because you drive home and clinch the nails before you twist them off," said I. "Yes," replied he, "by which I secure a *rivet* as well as a *clinch*."—The thing was as clear as the light of day, and I have several times endeavored to make our shoeing-smiths understand it, but they cannot see the advantage it would be to *themselves*, and guess, therefore, *it would never do in these parts;* but if my brother farmers cannot see how it works with half an eye, and have not the resolution to get it put into practice, they ought to see the shoes drop from the feet of their horses daily, as I was once accustomed to do. Now, let any one take up an old horse shoe at any of the smiths' shop on the road, and examine the clinch of the nails which have been drawn out of the hoof, and he will soon perceive how the thing operates.—In short, if the nails are driven home before twisting off, and the *rivet*, formed by the *twist*, be not afterwards removed by the rasp, I should be glad to be told how the shoe is to come off at all, unless by first cutting out the twist.—*London Field.*

Wonderful Power of Fuel.—It is well known to modern engineers, (remarks an English journal,) that there is virtue in a bushel of coal properly consumed, to raise seventy millions of pounds weight a foot high. This is actually the average effect of an engine working in Huel Town, Cornwall, England. Let us pause a moment and consider what this is equivalent to in matters of practice. The ascent of Mount Blanc from the valley of Chamouni is considered, and with justice, as the most toilsome feat that a strong man can execute in two days. The combustion of two pounds of coal would place him on the summit. The Menai bridge, one of the most stupendous works of art that has been raised by man in the modern ages, consists of a mass of iron not less than four millions of pounds in weight, suspended at a medium height of about 120 feet above the level of the sea. The consumption of seven bushels of coal would suffice to raise it to the place where it hangs. The great pyramid of Egypt is composed of granite. It is seven hundred feet, in the side of its base, and five hundred in perpendicular height, and stands on eleven acres of land. Its weight is therefore 12,700 millions of pounds, at a medium height of 125 feet; consequently, it would be raised by the effort of about 630 chaldrons of coal, a quantity consumed in some foundries in a week. The animal consumption of coal in London is estimated at 1,500,000 chaldrons. The effort of this quantity would suffice to raise a cubical block of marble, 2,200 feet in the side, through a space equal to its own height, or to pile one mountain on another. The Monte Nuovo, near Pozzueli, which was erupted in a single night by volcanic fire, might have been raised by such an effort from a depth of 40,000 feet, or about eight miles. It will be seen that in the above statement, the inherent power of fuel is, of necessity, greatly underrated. It is not pretended by engineers that the economy of fuel is yet pushed to its utmost limit, or that the whole effective power is obtained in any application of fire yet devised; so that were we to say 100 millions, instead of 70, we should probably be nearer the truth.—*Maine Farmer.*

The Seasons.—How beautiful is Spring! Every one hails it with joy, as it comes decked with lovely flowers, and with green robes for all the vegetable world. All Nature, animate and inanimate, is subject to its influence. Birds return from Southern climes to enliven the scene with their cheerful melody. The various animal tribes express their delight, each in its own peculiar manner. Man, too, partakes of this universal joyousness. The young are jubilant, the old are electrified, and in a measure rejuvenated, and a grand chorus of admiration ascends from every valley and every hill-top. This is the season of PROMISE.

Summer succeeds. The seed has been committed to the earth, the tender blade is shooting forth, and careful culture and training are needed to insure a crop. Anxiety oft takes possession of the mind, producing a salutary effect by inducing a greater degree of watchfulness. Occurrences beyond our control may sometimes blight our prospects, yet upon our own exertions, mainly, depends a remunerating harvest. A little neglect is often highly detrimental. This is the season of HOPE.

Autumn follows, when the promise of Spring, and the hopes of Summer, are to be realized. If we have sown in good soil, and have cultivated the tender plants with proper care, imploring, the while, with grateful and prayerful hearts, the blessing of benignant Heaven, we shall now receive an abundant harvest. This is the season of FRUITION.

Winter, the season for CONTEMPLATION, soon arrives, with its icy blasts and howling storms; but he who has acted well his part in the preceding seasons, will be prepared for this Plenty has crowned his labors; his garners are full, and he may sit quietly and comfortably by his own fireside, undisturbed by wind or storm, and unscathed by the pinching hand of want. He reflects upon the past, anticipates the future, cultivates his intellect, and, with the eye of one who has done his duty,

"Looks through Nature up to Nature's God."

In contemplating the vicissitudes of the seasons, he can exclaim with the poet of Nature,

"These, as they change, Almighty Father, these
Are but the varied God. The rolling year
Is full of Thee."

—*New England Farmer.* L. VARNEY, Bloomfield, C. W.

# Editorial Notices, &c.

*The New Sugar Canes.* Hamilton, C.W.: Brown & Greig. 1859.

This pamphlet comprises an enquiry into the nature, uses and economic value of the Chinese and African sugar plants, with special reference to Western Canada, read before the HAMILTON ASSOCIATION, April 15th, 1859, by Charles Robb, C.E. and published by request It contains much interesting and suggestive information relative to the culture, growth and qualities of these canes, with the most approved method of extracting the syrup, sugar, &c. The Sorgho, we believe, may be advantageously cultivated in Canada as a forage plant,—all kinds of stock living and thriving upon it. Boiling it down into syrup may also be successful, but we very much doubt whether it can be made, so far north, a profitable source from which to obtain sugar, unless the price of cane-sugar should become much higher than it is at present. Persons interested in the subject will find much to enlighten them and to satisfy their curiosity in Mr. Robb's methodical and well written essay.

## NOTICES OF THE PRESS.

"*Canadian Agriculturist and Journal and Transactions of the Board of Agriculture of Upper Canada*, for April, 1859.

This is one of the most valuable publications emanating from the Canadian press — The farmer that is without this, or some other agricultural periodical of equal note, is not deserving the name. It is impossible to farm successfully without an intimate acquaintance with the agricultural literature of the day. The exceedingly low price at which it is sold, being only $1 per annum for a single copy, and 50 cents only for a club of ten subscribers, makes it accessible to every farmer, who should not fail to subscribe for it immediately."—*Newburgh Index.*

"*The Canadian Agriculturist*, for April, 1859. $1 a-year.

Since this magazine has been managed and published by the Board of Agriculture, it has slowly but surely improved, and the present No. is a very fair sample of a very cheap and useful periodical, that should be found in every farmer's house. What is a dollar a-year compared with the variety of useful knowledge contained in every number?" —*Kingston Whig.*

[We have to return our best thanks to the *Index*, the *Whig*, and numerous other exchanges, who have favored us with repeated friendly notices, similar to the above; and in doing so, we beg to observe that although the price of the *Agriculturist* to single subscribers is a dollar,—and it may fairly be considered to be cheap at that rate, looking at the amount of paper and reading matter,—yet, practically, the price is only half-a-dollar, or even less, as it is furnished to clubs or societies taking ten copies, at that rate, with a bonus of ten per cent, when fifty copies or upwards are taken. The object of the Board is to offer a large inducement to Societies to take the publication, and also to induce individuals to subscribe through the Societies; therefore, the price is placed much lower to the latter, than to persons taking only a single copy.]—ED.

THE

# Canadian Agriculturist,

AND

# JOURNAL OF THE BOARD OF AGRICULTURE

OF UPPER CANADA.

VOL. XI. TORONTO, JUNE, 1859. No. 6.

## THE SEASON.

We have had an unusually mild and early spring, resembling in many respects the ordinary characteristics of the season in the old country. Ploughing and farm work generally, commenced in March, that and the succeeding month being unprecedently mild and open, enabling farmers and gardeners to get in their crops early and in excellent condition. The season for transplanting trees, &c., in spring, is usually very short in Canada, but this year it has been extended to twice its ordinary length, and all such kinds of work have been done not only early but in good order, with the best prospects of success. The greater part of May, however, was in some parts of the Province very dry, so as to create fears for the Hay crop. And, as is not unfrequent in very early springs, considerable damage was done in some localities to the young fruit-blossoms by the night frosts. This, however, appears to have been partial, and on the whole the prospect of the fruit, and particularly of the grain crops, was highly promising. A large breadth of early potatoes was sown in April and May, and the temperature being high they soon vegetated and attained to considerable growth. The high winds and cold rains the latter part of May, arrested the progress of vegetation. Friday and Saturday, the 3rd and 4th of June, were particularly cold, boisterous and unpleasant days, while during the night of the latter a frost occurred, which for suddenness and severity has not been equalled in the month of June for the last twenty years. Thermometers in several different situations, registered from 3 to 6 or 7 degrees of frost during that fearful night. The consequence was that all kinds of tender vegetation were completely cut down. Potatoes, Indian corn, tomatoes, &c., where sufficiently advanced above ground, were nothing but a blackened and shrivelled mass under the bright sky of the next day. Even the young currants were frozen and bleached, and the tender leaves of the ash, hickory, American creeper, and other shrubs were blackened. Tender flowers shared the same fate, as, we presume, must likewise the hop. So severe in some situations was the frost that cucumbers, &c., protected by matting, suffered considerably. The weather has since continued cold and ungenial, with night frosts of less severity. At the time we are writing, (June 13th) there are symptoms of a change, the temperature is rising, and showers are copiously falling.

This frost appears to have extended over a large area of this continent—from the States of New York, Ohio, Michigan, Illinois, Wisconsin, &c., we get similar intelligence. The market gardeners, whose profits mainly depend upon early vegetables, will be the greatest sufferers; and it will not be possible by any subsequent measures they can adopt, to repair fully the loss. The injury done to fruit will prove, we fear, extensive, and also to Indian corn. Wheat and other kinds of grain have of course suffered much less—and there is still good reasons for hoping that these will prove abundant. In some sections of the Province symptoms of the wheat midge have shown themselves, and every day people will be anxiously waiting for intelligence on this important, and we might say exciting topic. The hay crop, there is reason to fear, will fall below an average, but there is yet time for farmers to mitigate the effects by sowing a larger breadth of turnips. With favorable weather for the future, an abundance may yet be in store for us.

## HAYMAKING.

In consequence of the late ungenial weather, the grass crop will neither be so early nor abundant, as was at one time anticipated. The clover plant in some situations is weak and thin; having been winter killed for want of a sufficient covering of snow. Where the latter was present during the severe frosts in February, the ground in good heart, and sufficient seed had been sown, the grass will generally be found a fair crop. It is of importance therefore, to the stock farmer in particular, that the grasses should as far as possible, be converted in the surest and readiest manner into sound and nutritious hay.

With the appliances which the modern agricultural mechanician affords the farmer in the way of improved mowing machines, horse rakes, &c., the task of making grass into hay has of late years become more easy, certain and expeditious. The old system was both troublesome and expensive, and the results not unfrequently problematical. Now, by putting into requisition the modern improved implements, when the barometer and other indications denote a settled state of the weather, a large breadth of grass may, in a few days, be safely housed as hay, affording healthy sustenance to live stock during our long and commonly inclement winters.

A very frequent error is committed in allowing the grasses to become too old before cutting. The reason assigned for this practice is that the largest weight of hay is thereby obtained. Even as to mere weight the practice is very questionable; while the quality has been deteriorated to an extent which few can understand. The true rule for cutting the grasses, whether it be timothy, clover, or any other kind, is when they are in full bloom. It is when they possess the largest amount of those nourishing ingredients which sustain the health and promote the growth of stock. To allow the seed to form and ripen before cutting, and which is often shaken out in the field and lost in the process of curing, a large portion of the starch and sugar becomes changed into woody fibre in the thick cuticle of the stem, a substance containing but very little nourishing power.

In our extremely hot weather, hay, during the process of making, is often exposed too much. Much shaking is injurious, particularly to clover, the leaves of which are so liable to fall off. No more shaking and exposure should be permitted than are absolutely required to effect the necessary evaporation, to prevent the hay fermenting too much when put into the rick or barn. Hay is always more or less injured by being allowed to be spread abroad during the night.

Our copious dews are as injurious to it as a slight shower. It ought always to be left either in windrows or cocks; the latter being safer. The practice of salting hay in the mow is to be commended, particularly when it has sustained injury by wet during the process of making.

## THE SUMMER FALLOW

The practice of fallowing land for the cereal crops is of very ancient date, going back to the most remote periods of history; and it is still a practice very generally followed by all agricultural nations in the present day. Of its benefits in general, when properly performed, experience leaves no doubt. The soil by being pulverized, absorbs ammonia from the atmosphere, becomes cleared of weeds, and by the disintegration to which it is subjected by repeated ploughings, harrowing, &c., yields up into a free state, potash and other valuable ingredients, constituting the essential food of plants. In Canada by far the greatest portion of winter wheat is raised upon summer fallows. It becomes then to the practical man a question of very great moment, whether this important operation is in general so thoroughly performed as an advancing agriculture and a constantly and rapidly increasing population demand.

We are not unaware of the fact, that of late years an opinion has been gaining ground both in Europe and America, that the naked fallowing of land is a wasteful and unprofitable practice; denoting indeed a stationary rather than an improving condition of husbandry. The introduction of root culture and the drill, has no doubt superseded, at least to a very great extent, the necessity of a whole year's fallow, especially upon the lighter soils, and in such a climate as the British Isles, where turnips, mangold wurzel, &c., yield a heavier and more certain crop, and butcher's meat fetches a much higher price than is the case in any portion of this continent. In England, however, upon the heavier soils, it is still found necessary every few years to subject the land intended for wheat to the cleansing and renovating process of a naked fallow, which is usually done in a thorough and expensive manner. Three or four deep ploughings, with scarifying, rolling, &c., with a liberal dressing of manure, are frequently given; a circumstance that will go a long way to account for the production of the forty and fifty bushels of wheat per acre that are frequently obtained from land which has been subjected to arable culture for centuries.

In order to render the growth of wheat more certain and remunerative in Canada, it is essential that our summer fallow should be more thoroughly prepared. Instead of two, or at the most three, superficial ploughings, with portions of the ground often left unmoved, it would be far better to expend double the amount of labor in effecting a more deep and thorough culture, which would greatly obviate the necessity of so frequent a recourse to the fallow as a means of renovating and preparing the soil for wheat. Upon our lighter soils, where root and clover crops are grown to any considerable extent, accompanied by the fattening of sheep, naked fallows as on similar soils in Europe, may be in a great measure dispensed with, and the land kept clear and in good heart. But on the stiffer soils, especially where they have been superficially cultivated and over-cropped, and, as a consequence filled with weeds, a deep ploughing before the frosts of winter set in, leaving the surface as rough as possible, is an excellent commencement for the next summer's fallow. In dry, hot weather, (for clay land particularly, ought never to be worked when in a wet state,) a good cultivator or grubber, drawn by three, or if need be, four, stout horses, to the depth of ten or twelve inches, would be more effectual and beneficial than half a dozen ordinary ploughings. Steam, there is now reason to hope, will, ere long, supply us with a cheaper and more efficient power for accomplishing this and other purposes.

Our farmers should never forget that the cultivation of wheat can never be made profitable on *wet* land. In such circumstances *draining is absolutely essential.* This, with clear cultivation, judicious manuring, careful selection of seed, and a rational system of rotation, would undoubtedly make wheat-growing and indeed all our other crops, far more certain and profitable than they now are, and would go a long way in banishing those insects and parasites, which, of late years have proved so terribly destructive.

## THE PROVINCIAL EXHIBITION.

The Prize List for the Fourteenth Exhibition of the Provincial Agricultural Association of Upper Canada appears in the present number. Notwithstanding the great depression in every branch of business throughout the Province, and the consequent possible falling off in receipts at the fair, the amount offered in prizes remains the same as last year, being the large sum of nearly Twelve Thousand Dollars. Some slight changes have, however, been made in the details of the list. The Kingston Local Committee with the active and zealous President of the Association, Wm. Ferguson, Esq., at their head, are setting to work most vigorously, and will, no doubt, have every desirable preparation made in ample time. They propose to expend some Fifteen Hundred Pounds in the improvement of the permanent Exhibition Building already existing there, and in the erection of other buildings and permanent cattle pens, and in the arrangement of the grounds. With the experience gained upon former occasions, there can be little fear that the Kingston Committee will succeed in rendering the arrangements in every respect satisfactory to exhibitors and the public.

## THE GOVERNMENT GRANT TO COUNTY SOCIETIES.

We beg again to remind the Treasurers of County or Electoral Division Agricultural Societies, of the important fact, that the affidavit stating the amount of subscriptions in their hands for the year, must be transmitted to the Board of Agriculture, Toronto, on or before the 1st day of July, otherwise they will not be entitled to receive any portion of the Government grant. The document to be addressed to G. Buckland, Esq., Secretary of the Board of Agriculture, Toronto.

# Agricultural Intelligence.

The Seventh Annual Exhibition of the United States Agricultural Society will be held within the environs of Chicago, on the 12th of September.

June Frost.—The accounts of injury to early vegetables from the frost of Sunday morning, 5th inst., are very general from all parts of the Province and the adjoining States.

The Sandwich *Maple Leaf* says the frost has done an immense amount of injury to the corn crop throughout the County of Essex, in some places rendering it necessary to replace whole fields, which, it is so far fortunate, can still be done with prospects of success.

The main dependence this year of the farmers in that section is on their crop of corn, which is by far the largest ever planted there and a failure would prove a very serious matter.

*Sales of the new wheat crop,* harvested in the Southern States, were made at New York and St. Louis the first week in June.

Destitution.—A Fergus correspondent of the Guelph *Advertiser* says it is truly distressing to witness the destitution and want prevailing in the more recently settled townships of the County of Wellington. Many of the inhabitants are dependent on the products of their cows and the herbs which they gather for the principal part of their subsistance. It is encouraging however to learn, that after all the scarcity of seed the farmers have sown bountifully, and at present there is good ground to hope that they will also reap bountifully.

The Crops.—From all parts of the country the reports of the appearance of the incoming crops are very gratifying. The very extraordinary occurrence of so severe a frost, as that of Saturday night 4th, or Sunday morning 5th inst., was no doubt very damaging to tender vegetation, but we believe that the fears expressed of injury to the wheat and other principal field crops, are, except in very few instances, unfounded.

The Halifax, (Nova Scotia,) *Morning Journal* says that the season has been so far, in that Province, one of the most favorable ever known for bringing forward the growing crops. It is asserted by many that vegetation is on the whole more advanced this year by three weeks earlier than in 1858. The hay harvest promises an early as well as an abundant yield.

The Midge.—The St. Catherines *Constitutional* says that the Midge has been already detected there this season in immense numbers.

Indian Corn.—The Windsor *Herald* of June 2d says, "that Mr. M. G. Fox of Gosfield had planted 45 acres of this crop. We have learned since that Mr. Fox has been distanced by Mr. W. C. Muckle of the Township of Malden who has planted 61 acres, and two of his neighbors have planted, one of them 30 and the other 40 acres. Essex this year will be celebrated for corn should the weather continue as favorable as it is at present."

Barley in the West.—Some of the newspapers state that in the County of Kent, the worm has completely destroyed whole fields of barley, which is an important staple in that region. A Detroit paper states that one farmer has ploughed over a field of twelve acres, and that others are pursuing the same course, and sowing with millet.

The Stratford *Beacon* states that Mr. John Ballantyne, of Downie, one of the most enterprising Agriculturists in the County, has *imported* a quantity of bone dust, with which he intends to sow Turnips. This appears somewhat singular, in connection with the fact that Mr. Lamb, who has a mill in this city, has been upon the point of *exporting* his bones to Europe for want of a market in this country.

## Horticultural.

The first show for the season of the Toronto Horticultural Society, was held on June 2d, and was highly successful, there being a large variety of plants, flowers, and early vegetables exhibited, and all or nearly all of them in excellent condition.

Remedy for the Curculio.—The New York *Observer* publishes the following *recipe*:—"To one pound of whale oil soap, and four ounces of flour of sulphur. Mix thoroughly, and dissolve in twelve gallons of water.

"To one half peck of quick-lime, add four gallons of water, and stir well together. When fully settled, pour off the transparent lime water, and add to the soap and sulphur mixture.

"Add to the same, also, say four gallons of tolerably strong tobacco water.

"Apply this mixture, when thus incorporated, with a garden syringe, to your plum and other fruit trees, so that the foliage shall be well drenched. If no rains succeed for three weeks, one application will be sufficient. Should frequent rains occur, the mixture should be again applied until the stone of the fruit becomes hardened, when the season of the curculio's ravages is past."

First Fruit of the Season.—Ripe Strawberries were gathered in the gardens and fields in the neighborhood of Toronto about the 4th of June.

## EFFECTS OF THE FROST IN THE UNITED STATES.

Buffalo.—A heavy frost occurred in this vicinity last Saturday night—it is feared doing heavy damage to the fruit. Accounts from the country towns report the crops badly damaged, and, it is feared, extremely ruined.

Cleveland.—There were heavy frosts in this region on Saturday night, and it is feared that the wheat crop throughout northern Ohio is rather badly injured, or wholly destroyed. Corn, grapes, and potatoes are badly frozen.

Dansville, N. Y.—A heavy frost prevailed in this vicinity on Saturday night, killing all the garden vegetables, corn, and potatos. It is feared also that fruits of all kinds have been cut off.

# Miscellaneous.

## TIMES GO BY TURNS.

An English Jesuit, Robert Southwell, wrote the following lines of much merit, two centuries and a half ago. The philosophic strain pervading the piece is worthy of admiration.

The lopped tree in time may grow again,
Most naked plants renew both fruit and flower;
The sorriest wight may find relief from pain,
The dryest soil suck in some moistening shower.
Times go by turns, and chances change by course,
From foul to fair, from better hap to worse.

The sea of fortune doth for ever flow,
She draws her favors to the lowest ebb;
Her tides have equal times to come and go,
Her loom doth weave the fine and coarsest web.
No joy so great but runneth to an end,
No hap so hard but may in time amend.

Not always fall of leaf, nor ever spring;
No endless night, nor yet eternal day;
The saddest birds a season find to sing,
The roughest storm a calm may soon allay.
Thus with succeeding turns God tempereth all,
That man may hope to rise, yet fear to fall.

A chance may win that by mischance was lost;
That net that holds no great, takes little fish;
In some things all, in all things none are crossed;
Few all they need, but none have all they wish.
Unmingled joys here to no man befall;
Who least, have some; who most, hath never all.

Fires in the Woods.—The Woodstock, (New Brunswick,) *Journal*, of May 19th, says the extraordinary dryness of the season in that Province has led to the occurrence of extensive fires in the woods, charging the atmosphere with smoke, and thus adding still more to its drying and parching nature. Those fires have in places spread into the clearings, and destroyed buildings. The absence of rain or any other meteoric interruption, however, enabled farmers to push forward their spring work with unusual celerity.

The Enniskillen Oil.—The London *Free Press* learns that Professor Croft has succeeded in deodorizing the natural oil found in the County of Lambton. Its illuminating qualities are excellent, but it had an unmistakeable effluvia. That removed, no obstacle remains to its use, and as the proprietor, Mr. Williams, has already secured some 30,000 gallons in its crude state, it is believed that it will soon be on sale. It is estimated that the supply will be amply sufficient for the wants of all the consumers in the colony, and will form an item of domestic manufacture of no mean kind.

FOURTEENTH EXHIBITION OF THE

# PROVINCIAL AGRICULTURAL ASSOCIATION,

TO BE HELD AT KINGSTON,

*On Tuesday, Wednesday, Thursday, and Friday, September* 27, 28, 29, 30.

## RULES AND REGULATIONS.

"The Members of the Agricultural Societies of the several Townships within the County or Electoral Division or United Counties wherein the Annual Exhibition may be held, and the members of the said County or Electoral Division Society, shall be also members of the Association for that year, and have members' tickets accordingly: provided the Agricultural Societies of the said Townships, or the Societies of the said County or Electoral Division or United Counties, shall devote their whole funds for the year, including the Government Grant, in aid of the Association. The Office bearers of all County Societies shall have tickets of free entrance during the Show.—*By-law.*"

1. The payment of $1 and upwards constitutes a person a member of the Agricultural Association of Upper Canada for one year; and $10 for life, when given for that specific object, and not as a contribution to the local funds.

2. No one but a member will be allowed to compete for prizes except in classes 25, 35, 41, 43.

3. All Entries must be made on printed forms, which may be obtained of the Secretaries of Agricultural Societies, or of Mechanics' Institutes, free of charge. These forms are to be filled up and signed by the exhibiter, enclosing a dollar for membership, and sent to the Secretary of the Association, Board of Agriculture, Toronto, ON OR BEFORE SATURDAY SEPTEMBER 10, after which no entries can be taken except in the Horticultural and Ladies' Departments and Foreign classes.

Exhibiters in these Departments may enter articles up to Monday Evening, September 26, when the Books will be finally closed.

4. *Blood Horses and Thorough-bred Cattle* must be entered, and have their full pedigrees properly attested and sent to the Secretary in Toronto, *not later than Saturday, September* 10*th*. No animals will be allowed to compete as pure bred, unless they possess regular Stud and Herd Book pedigrees, or satisfactory evidence be produced that they are directly descended from such stock. In the class of Durham Cattle, particularly, no animal will be entered for competion, unless the pedigree of the same be first inserted in the English or American Herd Book, or in the Upper Canada Stock Register, kept at the office of the Board of Agriculture.

5. Tickets from the Treasurer's Office will be furnished each member, which will admit himself only, free to every department of the Exhibition, during the Show. Life members admitted free.

6. Tickets of admission to those who are not members, 25 cents each time of admission. Children under 14 years of age, half-price. Carriages, including drivers, $1; passengers to pay 25 cents each. Horsemen to pay 50 cents each admission.

7. Every article, other than live stock, exhibited for competition must be the growth, produce, or manufacture of Canada, except in classes 35 and 50, Live Stock, except in class 25 must be the *bona fide* property of persons residing in Canada, and must be exhibited in the name of the owner only. All premiums for articles, except Stock, are to be awarded to *the manufacturers or producers only*.

8. Articles for Exhibition must be on the grounds on Monday, except live stock, which must be there not later than Tuesday at noon.

9. Discretionary Premiums will be awarded for such articles as may be considered worthy by the Judges, although not enumerated in the List, and the Directors will determine the amount of premium.

In the Fine Arts and Mechanical Department, Diplomas will be awarded—in addition to the money prizes—to any specimen evidencing great skill in its production, or deemed otherwise worthy of such a distinction, on its being recommended by the Judges and approved of by the Committee to whom all such matters shall be referred.

In the absence of competition in any of the Classes, or if the Stock or articles exhibited be of inferior quality, the Judges will exercise their discretion as to the value of the premiums they recommend.

10. The Judges, Competitors, and Officers of the Association, only, will be permitted to enter the Show Grounds, until 12 o'clock on Tuesday 27th, at which hour and during the whole of Wednesday Members will be admitted. Non-Members will be admitted on *Thursday and Friday mornings* after 8 o'clock.

11. No articles or Stock exhibited will be allowed to be removed from the grounds, till the awards are made, without the permission of the President, under the penalty of losing the premiums. An Auctioneer will be on the ground after the premiums are announced, and every facility afforded for the transaction of business.

12. Delegates, Judges and Members of the Press are requested and expected to report themselves at the Secretary's Office, immediately on their arrival.

13. The Judges are to meet at the Secretary's Office on the Grounds, on Tuesday, at noon, to make arrangements for entering upon their duties.

14. The Annual Meeting of the Directors of the Association, will take place on the grounds on Friday morning at 10 o'clock.

15. While the Directors will take every possible precaution, under the circumstances, to ensure the safety of articles sent to the exhibition, yet they wish it to be distinctly understood that the owners of the articles must themselves take the risk of exhibiting them; and that should any article be accidentally injured, lost or stolen, the Directors will give all the assistance in their power towards the recovery of the same, but will not make any payment for the value thereof.

16. The Treasurer will be prepared to commence paying the premiums on Saturday, 1st October, at 9 a. m., and parties who shall have prizes awarded them are particularly requested to apply for them before leaving Kingston, or leave a written order with some person to receive them, stating the articles for which prizes are claimed.

The Local Committee will make arrangements with Steamboat and Railroad proprietors for carrying articles and passengers at reduced rates.

N.B.—In case the Directors shall require any particular information in reference to animals or articles taking first prizes, the owners will be expected to transmit it, when requested to do so.

Provender will be provided by the Association for live stock at cost price.

# PRIZE LIST.

## DEPARTMENT FIRST.

LIVE STOCK, AND AGRICULTURAL AND HORTICULTURAL PRODUCE AND IMPLEMENTS.

### HORSES.

CLASS I.—BLOOD HORSES.

| *Sect.* | | $ | c. |
|---|---|---|---|
| 1. Best thorough-bred stallion | | 40 | 00 |
| 2d | do | 25 | 00 |
| 3d | do | 12 | 00 |
| 2. Best thorough-bred 3 years old stallion | | 22 | 00 |
| 2d | do | 14 | 00 |
| 3d | do | 7 | 00 |
| 3. Best thorough-bred 2 years old stallion | | 14 | 00 |
| 2d | do | 10 | 00 |
| 3d | do | 5 | 00 |
| 4. Best thorough-bred yearling colt. | | 8 | 00 |
| 2d | do | 6 | 00 |
| 3d | do | 4 | 00 |
| 5. Best thorough-bred 3 years old filly | | 18 | 00 |
| 2d | do | 11 | 00 |
| 3d | do | 7 | 00 |
| 6. Best thorough-bred 2 y'r old filly | | 14 | 00 |
| 2d | do | 11 | 00 |
| 3d | do | 7 | 00 |
| 7. Best thorough-bred yearling filly. | | 10 | 00 |
| 2d | do | 6 | 00 |
| 3d | do | 4 | 00 |
| 8. Best thorough-bred mare and foal | | 22 | 00 |
| 2d | do | 14 | 00 |
| 3d | do | 6 | 00 |
| 9. Extra entries. | | | |

Pedigree to be produced in this class.

CLASS II.—AGRICULTURAL HORSES.

| *Sect.* | | $ | c. |
|---|---|---|---|
| 1. Best stallion for agricultural purposes | | 40 | 00 |
| 2d | do | 25 | 00 |
| 3d | do | 12 | 00 |
| 2. Best roadster or carriage stallion. | | 40 | 00 |
| 2d | do | 25 | 00 |
| 3d | do | 12 | 00 |
| 3. Best 3 years old stallion | | 22 | 00 |
| 2d | do | 14 | 00 |
| 3d | do | 7 | 00 |
| 4. Best 2 years old stallion | | 14 | 00 |
| 2d | do | 10 | 00 |
| 3d | do | 5 | 00 |
| 5. Best yearling colt | | 8 | 00 |
| 2d | do | 6 | 00 |
| 3d | do | 4 | 00 |
| 6. Best 3 years old filly | | 18 | 00 |
| 2d | do | 11 | 00 |
| 3d | do | 7 | 00 |

| Sect. | | $ c. |
|---|---|---|
| 7. Best 2 years old filly | | 14 00 |
| 2d | do | 9 00 |
| 3d | do | 4 00 |
| 8. Best yearling filly | | 8 00 |
| 2d | do | 6 00 |
| 3d | do | 4 00 |
| 9. Best brood mare and foal, or evidence that the foal has been lost | | 22 00 |
| 2d | do | 14 00 |
| 3d | do | 6 00 |
| 10. Best roadster or carriage brood mare and foal, &c | | 22 00 |
| 2d | do | 14 00 |
| 3d | do | 6 00 |
| 11. Best span matched carriage horses | | 20 00 |
| 2d | do | 15 00 |
| 3d | do | 10 00 |
| 12. Best saddle horse | | 10 00 |
| 2d | do | 8 00 |
| 3d | do | 6 00 |
| 13. Best single carriage horse in harness | | 10 00 |
| 2d | do | 8 00 |
| 3d | do | 6 00 |
| 14. Extra entries. | | |

CLASS III.—HEAVY DRAUGHT HORSES.

| | | |
|---|---|---|
| 1. Best heavy draught stallion | | 40 00 |
| 2d | do | 25 00 |
| 3d | do | 12 00 |
| 2. Best 3 years old stallion | | 22 00 |
| 2d | do | 14 00 |
| 3d | do | 7 00 |
| 3. Best 2 years old stallion | | 14 00 |
| 2d | do | 10 00 |
| 3d | do | 5 00 |
| 4. Best yearling colt | | 8 00 |
| 2d | do | 6 00 |
| 3d | do | 4 00 |
| 5. Best 3 years old filly | | 18 00 |
| 2d | do | 11 00 |
| 3d | do | 7 00 |
| 6. Best 2 years old filly | | 14 00 |
| 2d | do | 9 00 |
| 3d | do | 4 00 |
| 7. Best yearling filly | | 8 00 |
| 2d | do | 6 00 |
| 3d | do | 4 00 |
| 8. Best broad mare and foal, or evidence that the foal has been lost | | 22 00 |
| 2d | do | 14 00 |
| 3d | do | 6 00 |
| 9. Best span of draught horses | | 20 00 |
| 2d | do | 15 00 |
| 3d | do | 10 00 |
| 10. Extra Entries. | | |

## CATTLE.

CLASS IV.—DURHAMS.

| | | |
|---|---|---|
| 1. Best bull 4 years old and upwards. | | 36 00 |
| 2d | do | 24 00 |
| 3d | do | 16 00 |
| 4th | do | 8 00 |
| 2. Best 3 years old bull | | 32 00 |
| 2d | do | 20 00 |
| 3d | do | 12 00 |
| 4th | do | 6 00 |
| 3. Best 2 years old bull | | 24 00 |
| 2d | do | 16 00 |
| 3d | do | 9 00 |
| 4th | do | 5 00 |
| 4. Best 1 year old bull | | 20 00 |
| 2d | do | 12 00 |
| 3d | do | 8 00 |
| 4th | do | 4 00 |
| 5. Best bull calf (under 1 year) | | 16 00 |
| 2d | do | 10 00 |
| 3d | do | 6 00 |
| 4th | do | 3 00 |
| 6. Best cow | | 20 00 |
| 2d | do | 12 00 |
| 3d | do | 8 00 |
| 4th | do | 4 00 |
| 7. Best 3 years old cow | | 16 00 |
| 2d | do | 10 00 |
| 3d | do | 6 00 |
| 4th | do | 4 00 |
| 8. Best 2 years old heifer | | 12 00 |
| 2d | do | 8 00 |
| 3d | do | 5 00 |
| 4th | do | 3 00 |
| 9. Best 1 year old heifer | | 10 00 |
| 2d | do | 6 00 |
| 3d | do | 4 00 |
| 4th | do | 2 00 |
| 10. Best heifer calf (under one year). | | 6 00 |
| 2d | do | 4 00 |
| 3d | do | 2 00 |
| 4th | do | 1 00 |
| 11. Entra Entries. | | |

N.B.—A certificate of HERD BOOK PEDIGREES, or a sufficient reference to the Herd Book in which they are registered, will be required of all animals in the Durham class, along with or previous to the application to enter them for exhibition. The pedigrees of others should be as full and correct as possible.

CLASS V.—DEVONS.

List of Prizes the same as in Class IV.

CLASS VI.—HEREFORDS.

Prizes the same as Class IV.

CLASS VII.—AYRSHIRES.

Prizes the same as Class IV.

CLASS VIII.—GALLOWAY CATTLE.

Prizes the same as Class IV.

CLASS IX.—GRADE CATTLE.

| | | |
|---|---|---|
| 1. Best cow | | 20 00 |
| 2d | do | 12 00 |
| 3d | do | 8 00 |
| 4th | do | 5 00 |
| 2. Best 4 years old grade cow | | 20 00 |
| 2d | do | 12 00 |
| 3d | do | 8 00 |
| 4th | do | 5 00 |

| Sect. | | $ c. |
|---|---|---|
| 3. Best 3 years old cow | | 16 00 |
| 2d | do | 10 00 |
| 3d | do | 6 00 |
| 4th | do | 4 00 |
| 4. Best 2 years old heifer | | 12 00 |
| 2d | do | 8 00 |
| 3d | do | 5 00 |
| 4th | do | 3 00 |
| 5. Best 1 year old heifer | | 10 00 |
| 2d | do | 6 00 |
| 3d | do | 4 00 |
| 4th | do | 2 00 |
| 6. Best heifer calf (under 1 year) | | 6 00 |
| 2d | do | 4 00 |
| 3d | do | 2 00 |
| 4th | do | 1 00 |
| 7. Extra Entries. | | |

DIPLOMAS will be awarded to the *breeders* or *importers* of bulls and stallions which take *first prizes*, when their names and residences are given.

The Judge shall ascertain, in deciding on bull calves in any of the foregoing classes, whether the animal has been suckled or raised by pail, and make allowances accordingly.—The exact age of young animals must be stated on the cards, and will be taken into consideration by the judges in making their awards; and any person understating the age of an animal will forfeit the premium to which he might otherwise be entitled.

A certificate to be produced to show the breeding of animals in class ix.

Young cattle may compete if the exhibitor think fit, in an older class than that to which they properly belong; but no animal will be allowed to compete in more than one of the foregoing sections.

An animal will not be allowed to compete as a three-year old cow unless it has had a calf, but a two year old having had a calf will be allowed to compete as a two-year old heifer, if the owner thinks fit.

Prizes will be awarded to animals of other breeds than those above mentioned, if deemed worthy.

CLASS X.—FAT AND WORKING CATTLE, ANY BREED.

| | | |
|---|---|---|
| 1. Best fat ox or steer | | 30 00 |
| 2d | do | 20 00 |
| 3d | do | 12 00 |
| 2. Best fat cow or heifer | | 30 00 |
| 2d | do | 20 00 |
| 3d | do | 12 00 |
| 3. Best yoke of working oxen | | 20 00 |
| 2d | do | 12 00 |
| 3d | do | 8 00 |
| 4. Best yoke of 3 years old steers | | 16 00 |
| 2d | do | 10 00 |
| 3d | do | 6 00 |
| 5. Best team of oxen, not less than 10 yoke from one township, the property of any number of persons | | 40 00 |
| 6. Extra Entries. | | |

| Sect. | | $ c. |
|---|---|---|
| **SHEEP** | | |
| CLASS XI.—LEICESTERS. | | |
| 1. Best ram, two shears and over | | 16 00 |
| 2d | do | 10 00 |
| 3d | do | 4 00 |
| 2. Best shearling ram | | 16 00 |
| 2d | do | 10 00 |
| 3d | do | 4 00 |
| 3. Best ram lamb | | 8 00 |
| 2d | do | 4 00 |
| 3d | do | 2 00 |
| 4. Best 2 ewes, two shears and over | | 16 00 |
| 2d | do | 12 00 |
| 3d | do | 6 00 |
| 5. Best 2 shearling ewes | | 12 00 |
| 2d | do | 8 00 |
| 3d | do | 4 00 |
| 6. Best 2 ewe lambs | | 6 00 |
| 2d | do | 4 00 |
| 3d | do | 2 00 |

CRASS XII.—COTSWOLDS.

Prizes the same as in Class xi.

CLASS XIII.—CHEVIOTS.

Prizes the same as in Class xi.

CLASS XIV.—LONG WOOLED SHEEP, NOT PURE LEICESTERS, COTSWOLD, OR CHEVIOTS.

Prizes the same as in Class xi.

CLALL XV.—SOUTHDOWNS.

Prizes the same as in Class xi.

CLASS XVI.—MERINOS AND SAXONS.

Prizes the same as in Class xi.

CLASS XVII.—FAT SHEEP.

| | | |
|---|---|---|
| 1. Best 2 fat wethers | | 12 00 |
| 2d | do | 8 00 |
| 3d | do | 4 00 |
| 2. Best 2 fat ewes | | 12 00 |
| 2d | do | 8 00 |
| 3d | do | 4 00 |
| 3. Extra entries in Sheep. | | |

Sheep that have been shewn in any other class cannot compete as Fat Sheep.

[Sheep will not be allowed to compete with more than the present year's growth of wool upon them.]

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PIGS—LARGE BREEDS.

CLASS XVIII.—YORKSHIRES.

| | | |
|---|---|---|
| 1. Best Boar, 1 year and over | | 15 00 |
| 2d | do | 10 00 |
| 3d | do | 6 00 |
| 2. Best Breeding Sow 1 year and over | | 10 00 |
| 2d | do | 7 00 |
| 3d | do | 4 00 |
| 3. Best Boar, under 1 year | | 10 00 |
| 2d | do | 6 00 |
| 3d | do | 4 00 |
| 4. Best sow, under 1 year old | | 5 00 |
| 2d | do | 4 00 |
| 3d | do | 3 00 |

CLASS XIX.—LARGE BERKSHIRES.

Prizes the same as in Class XVIII.

CLASS XX.—ALL OTHER LARGE BREEDS.

Prizes the same as in Class XVIII.

## PIGS—SMALL BREEDS.

CLASS XXI.—SUFFOLKS.

Prizes the same as in Class XVIII.

CLASS XXII.—IMPROVED BERKSHIRES.

Prizes the same as in Class XVIII.

CLASS XXIII.—ALL OTHER SMALL BREEDS.

Prizes the same as in Class XVIII.

In the classes of Pigs, the *precise age* of the animal is to be *stated on the cards.*

With the view of encouraging largely the importation of improved stock, the exhibiter of any male animal imported into this Province from Europe since the last Exhibition, which shall take the first prize in any of the above classes, will be paid three times the amount of the premium offered in the list; the exhibiter of any female animal imported from Europe within the same time taking the first prize will be paid double the amount offered; the exhibitor of any male animal imported into the Province from any part of America within the same time, taking the first prize, will be paid double the amount of prize offered; and of any female animal imported within the same time, and taking the first prize, one-half in addition to the amount of prize offered in the list. Such animals to be the *bona fide* property of persons residing in Upper Canada. Satisfactory evidence must have been given at the time of making the entry that the animal has been imported within the time named, or the increased prize will not be paid.

CLASS XXIV.—POULTRY, &C.

| *Sect.* | | $ | c. |
|---|---|---|---|
| 1. | Best pair of white dorkings | 4 | 00 |
| | 2d do | 2 | 00 |
| 2. | Best pair of spangled do | 4 | 00 |
| | 2d do | 2 | 00 |
| 3. | Best pair of black Polands | 4 | 00 |
| | 2d do | 2 | 00 |
| 4. | Best pair of white Polands | 4 | 00 |
| | 2d do | 2 | 00 |
| 5. | Best pair of golden Polands | 4 | 00 |
| | 2d do | 2 | 00 |
| 6. | Best pair of silver Polands | 4 | 00 |
| | 2d do | 2 | 00 |
| 7. | Best pair of game fowls | 4 | 00 |
| | 2d do | 2 | 00 |
| 8. | Best pair of Jersey blues | 4 | 00 |
| | 2d do | 2 | 00 |
| 9. | Best pair of Cochin China, Shanghai, Canton, or Bramah Pootra fowls | 4 | 00 |
| | 2d do | 2 | 00 |
| 10. | Best pair of black Spanish fowls | 4 | 00 |
| | 2d do | 2 | 00 |
| 11. | Best pair of black Java fowls | 4 | 00 |
| | 2d do | 2 | 00 |
| 12. | Best pair Bolton grays | 4 | 00 |
| | 2d do | 2 | 00 |
| 13. | Best pair of Bolton bays | 4 | 00 |
| | 2d do | 2 | 00 |
| 14. | Best pair of Hamburg fowls | 4 | 00 |
| | 2d do | 2 | 00 |
| 15. | Best pair of Dominique | 4 | 00 |
| | 2d do | 2 | 00 |
| 16. | Best pair of feathered-legged bantams | 2 | 00 |
| | 2d do | 1 | 00 |
| 17. | Best pair of smooth-legged ban'ms | 2 | 00 |
| | 2d do | 1 | 00 |
| 18. | Best pair of turkeys (white or colored) | 4 | 00 |
| | 2d do | 2 | 00 |
| 19. | Best pair of wild turkeys | 4 | 00 |
| | 2d do | 2 | 00 |
| 20. | Best pair of large geese | 4 | 00 |
| | 2d do | 2 | 00 |
| 21. | Best pair Bremen geese | 4 | 00 |
| | 2d do | 2 | 00 |
| 22. | Best pair of Chinese geese | 4 | 00 |
| | 2d do | 2 | 00 |
| 23. | Best pair of Muscovy ducks | 4 | 00 |
| | 2d do | 2 | 00 |
| 24. | Best pair common ducks | 4 | 00 |
| | 2d do | 2 | 00 |
| 25. | Best pair of Aylesbury ducks | 4 | 00 |
| | 2d do | 2 | 00 |
| 26. | Best pair of Poland ducks | 4 | 00 |
| | 2d do | 2 | 00 |
| 27. | Best pair of Rouen ducks | 4 | 00 |
| | 2d do | 2 | 00 |
| 28. | Best pair of Guinea fowls | 4 | 00 |
| | 2d do | 2 | 00 |
| 29. | Best pair of pea fowls | 4 | 00 |
| | 2d do | 2 | 00 |
| 30. | Best collection of pigeons | 4 | 00 |
| | 2d do | 2 | 00 |
| 31. | Best lot of poultry, in one pen, and owned by the exhibitor | 6 | 00 |
| 32. | Best collection of poultry entered in the various classes by one exhibiter | 8 | 00 |
| 33. | Best pair of rabbits | 2 | 00 |
| 34. | Best lot of rabbits | 4 | 00 |
| 35. | other entries. | | |

Exhibiters will have to provide their own coops, and are recommended to have them about 3 feet cube in size, for convenience of arrangement on the grounds.

XXV.—FOREIGN STOCK.

| | | | |
|---|---|---|---|
| 1. | Best Durham bull, diploma and | 10 | 00 |
| | 2d do | 10 | 00 |
| 2. | Best Durham cow, diploma and | 6 | 00 |
| | 2d do | 6 | 00 |
| 3. | Best Ayrshire bull, diploma and | 10 | 00 |
| | 2d do | 10 | 00 |
| 4. | Best Ayrshire cow, diploma and | 6 | 00 |
| | 2d do | 6 | 00 |
| 5. | Best Hereford bull, diploma and | 10 | 00 |
| | 2d do | 10 | 00 |
| 6. | Best Hereford cow, diploma and | 6 | 00 |
| | 2d do | 6 | 00 |

| Sect. | | $ c. |
|---|---|---|
| 7. | Best Devon bull, diploma and..... | 10 00 |
| | 2d do..... | 10 00 |
| 8. | Best Devon cow, diploma and..... | 6 00 |
| | 2d do..... | 6 00 |
| 9. | Best stallion for agricultural purposes, diploma and..... | 12 00 |
| | 2d do..... | 12 00 |
| 10. | Best blood stallion, diploma and... | 12 00 |
| | 2d do..... | 12 00 |
| 11. | Best Leicester ram, diploma and | 6 00 |
| | 2d do..... | 4 00 |
| 12. | Best 3 Leicester ewes, diploma and | 6 00 |
| | 2d do..... | 6 00 |
| 13. | Best Southdown ram, diploma and | 6 00 |
| | 2d do..... | 6 00 |
| 14. | Best 2 Southdown ewes, dipl. and | 6 00 |
| | 2d do..... | 6 00 |
| 15. | Best Merino and Saxon ram, diploma and..... | 6 00 |
| | 2d do..... | 6 00 |
| 16. | Best two Merino or Saxon ewes, diploma and..... | 6 00 |
| | 2d do..... | 6 00 |
| 17. | Best boar, diploma and..... | 6 00 |
| | 2d do ..... | 6 00 |
| 18. | Best breeding sow, diploma and... | 6 00 |
| | 2d do..... | 6 00 |
| 19. | Extra entries in Foreign Stock. | |

## AGRICULTURAL PRODUCTIONS.

### CLASS XXVI.—GRAINS, SEEDS, &C.

The Canada Company's prize of.....100 00

1. For the best 25 bushels of Fall Wheat the produce of Canada West, being the growth of the year 1859. Each sample must be of one distinct variety, pure and unmixed. The prize to be awarded to the actual grower only of the Wheat, which is to be given up to and become the property of the Association, for distribution to the County Societies for SEED.

| | | |
|---|---|---|
| 2d | do by the Association. | 40 00 |
| 3d | do..... | 20 00 |

The winners of the 2d and 3d prizes to retain their wheat.

The winners of these prizes will be required to furnish the Secretary with a written statement of the nature of the soil, mode of preparation, the variety and quantity of seed, and time of sowing, manures (if any used), produce per acre of grain, and any other particulars of practical importance, before being paid the amount of premium. Winners of prizes in the succeeding sections of this class will also be expected to furnish information when applied for.

| Sect. | | $ c. |
|---|---|---|
| 2. | Best two bushels of winter wheat | 10 00 |
| | 2d do..... | 8 00 |
| | 3d do..... | 6 00 |
| | 4th do..... | 4 00 |
| 3. | Best two bushels spring wheat,... | 10 00 |
| | 2d do..... | 8 00 |
| | 3d do..... | 6 00 |
| | 4th do..... | 4 00 |
| 4. | Best two bushels of barley (two rowed)..... | 6 00 |
| | 2d do..... | 4 00 |
| | 3d do..... | 2 00 |
| | 4th do.....Vol. Transactions. | |
| 5. | Best 2 bushels of barley (6 rowed) | 6 00 |
| | 2d do..... | 4 00 |
| | 3d do..... | 2 00 |
| | 4th do..... | Trans. |
| 6. | Best two bushels rye..... | 6 00 |
| | 2d do..... | 4 00 |
| | 3d do..... | 2 00 |
| | 4th do..... | Trans. |
| 7. | Best two bushels of oats (white) | 6 00 |
| | 2d do..... | 4 00 |
| | 3d do..... | 2 00 |
| | 4th ..... | Trans. |
| 8. | Best two bushels of oats (black) | 6 00 |
| | 2d do..... | 5 00 |
| | 3d do..... | 3 00 |
| | 4th do..... | Trans. |
| 9. | Best two bushels of field peas..... | 6 00 |
| | 2d do..... | 5 00 |
| | 3d do..... | 3 00 |
| | 4th do..... | 2 00 |
| 10. | Best two bus. of marrow fat peas. | 6 00 |
| | 2d do..... | 4 00 |
| | 3d do ..... | 3 00 |
| | 4th do..... | 2 00 |
| 11. | Best two bushels tares..... | 6 00 |
| | 2d do..... | 5 00 |
| | 3d do..... | 3 0 |
| | 4th do..... | Trans. |
| 12. | best bushel of white field beans... | 6 00 |
| | 2d do..... | 4 00 |
| | 3d do..... | 3 00 |
| | 4th do..... | Trans |
| 13. | Best two bushels Indian corn in ear, (white)..... | 6 00 |
| | 2d do..... | 5 00 |
| | 3d do..... | 3 00 |
| 14. | Best two do [yellow]..... | 6 00 |
| | 2d do..... | 5 00 |
| | 3d do..... | 3 00 |
| 15. | Best bushel of timothy seed..... | 8 00 |
| | 2d do..... | 6 00 |
| | 3d do..... | 4 00 |
| 16. | Best bushel clover seed..... | 8 00 |
| | 2d do..... | 6 00 |
| | 3d do..... | 4 00 |
| 17. | Best bushel Alsike clover seed... | 8 00 |
| | 2d do..... | 6 00 |
| | 3d do..... | 4 00 |
| 18. | Best bushel hemp seed..... | 6 00 |
| | 2d do..... | 4 00 |
| | 3d do..... | 2 00 |
| 19. | Best bushel flax seed..... | 6 00 |
| | 2d do..... | 4 00 |
| | 3d do..... | 2 00 |
| 20. | Best bushel mustard seed..... | 6 00 |
| | 2d do..... | 4 00 |
| | 3d do..... | 2 00 |

| Sect. | | $ c. |
|---|---|---|
| 21. | Best Swedish turnip seed, from transplanted bulbs, not less than 20 lbs | 6 00 |
| | 2d do | 4 00 |
| | 3d do | 2 00 |
| 22. | Best 14 lbs field carrot seed | 6 00 |
| | 2d do | 4 00 |
| | 3d do | 2 00 |
| 23. | Best 12 lbs yellow mangold wurzel seed | 6 00 |
| | 2d do | 4 00 |
| | 3d do | 2 00 |
| 24. | Best bale of hops, not less than 112 lbs | 20 00 |
| | 2d do | 12 00 |
| | 3d do | 8 00 |
| 25. | Best bushel horse beans | 6 00 |
| | 2d do | 3 00 |
| 26. | Best bushel buckwheat | 4 00 |
| | 2d do | 2 00 |
| 27. | Extra entries. | |

CLASS XXVII—ROOTS AND OTHER FIELD CROPS.

| | | |
|---|---|---|
| 1. | Best bushel pink-eyed potatoes | 3 00 |
| | 2d do | 2 00 |
| | 3d do | 1 00 |
| 2. | Best bushel cup potatoes | 3 00 |
| | 2d do | 2 00 |
| | 3d do | Trans. |
| 3. | Best bushel goldfinders | 3 00 |
| | 2d do | 2 00 |
| | 3d do | 1 00 |
| 4. | Best bushel white potatoes | 3 00 |
| | 2d do | 2 00 |
| | 3d do | Trans. |
| 5. | Best bushel red do | 3 00 |
| | 2d do | 2 00 |
| | 3d do | Trans |
| 6. | Best bushel blue do | 3 00 |
| | 2d do | 2 00 |
| | 3d do | Trans. |
| 7. | Best bushel of any other sort | 3 00 |
| | 2d do | 2 00 |
| | 3d do | 1 00 |
| 8. | Best bushel Swede turnips | 3 00 |
| | 2d do | 2 00 |
| | 3d do | 1 00 |
| 9. | Best bushel of white globe turnips | 3 00 |
| | 2d do | 2 00 |
| | 3d do | 1 00 |
| 10. | Best bushel of Aberdeen yellow turnips | 3 00 |
| | 2d do | 2 00 |
| | 3d | Trans. |
| 11. | Best 20 roots red carrots | 3 00 |
| | 2d do | 2 00 |
| | 3d do | 1 00 |
| 12. | Best 20 roots white or Belgian carrots | 3 00 |
| | 2d do | 2 00 |
| | 3d do | 1 00 |
| 13. | Best 12 roots mangold wurzel (long red) | 3 00 |
| | 2d do | 2 00 |
| | 3d do | 1 00 |
| 14. | Best 12 roots yellow globe mangold wurzel | 3 00 |
| | 2d do | 2 00 |
| | 3d do | 1 00 |
| 15. | Best 12 roots long yellow mangold wurzel | 3 00 |
| | 2d do | 2 00 |
| | 3d do | Trans. |
| 16. | Best 12 roots of khol rabi | 2 00 |
| | 2d do | 1 00 |
| 17. | Best 12 roots of sugar beet | 3 00 |
| | 2d do | 2 00 |
| | 3d do | Trans. |
| 18. | Best 20 roots of parsnips | 3 00 |
| | 2d do | 2 00 |
| | 3d do | Trans. |
| 19. | Best 20 roots of chicory | 3 00 |
| | 2d do | 2 00 |
| | 3d do | 1 00 |
| 20. | Best two large squashes for cattle | 3 00 |
| | 2d do | 2 00 |
| | 3d do | Trans. |
| 21. | Best two mammoth field pumpkins | 3 00 |
| | 2d do | 2 00 |
| | 3d do | Trans. |
| 22. | Best four common yellow field do | 3 00 |
| | 2d do | 2 00 |
| | 3d do | 1 00 |
| 23. | Best 20 lbs of tobacco leaf, growth of Canada West | 4 00 |
| | 2d do | 2 00 |
| 24. | Best broom corn brush, 28 lbs | 4 00 |
| | 2d do | 3 00 |
| | 3d do | 2 00 |
| | *The Canada Company's Prize for Flax.* | |
| 25. | Best 112 lbs of Flax | 24 00 |
| | 2d do. by the Association | 16 00 |
| | 3d do | 8 00 |
| | *The Canada Company's Prize for Hemp.* | |
| 26. | Best 112 lbs of Hemp | 16 00 |
| | 2d do by the Association | 12 00 |
| | 3d do do do | 6 00 |
| 27. | Other entries. | |

[The Roots in the above class to be certified as of field culture by the Exhibiter.]

Turnips of other varieties than those above named will receive prizes if worthy.

The names of the different varieties of wheat or other grain, roots, &c., must be inserted in the list of entries by each exhibiter.

## HORTICULTURAL PRODUCTS.

CLASS XXVIII—FRUIT.

| | | |
|---|---|---|
| 1. | Best 20 varieties of apples, named, [six of each] | 5 00 |
| | 2d do | 4 00 |
| | 3d do | 3 00 |
| 2. | Best 12 table apples, named, [Fall sort] | 3 00 |
| | 2d do | 2 00 |
| | 3d do | 1 00 |

| Sect. | | $ c. |
|---|---|---|
| 3. | Best 12 table apples, named, [Winter sort] | 3 00 |
| | 2d do | 2 00 |
| | 3d do | 1 00 |
| 4. | Best 12 baking apples, named | 3 00 |
| | 2d do | 2 00 |
| | 3d do | 1 00 |
| 5. | Best 20 varieties of pears, named [three of each] | 5 00 |
| | 2d do | 4 00 |
| | 3d do | 3 00 |
| 6. | Best 12 table pears, named [Fall sort] | 3 00 |
| | 2d do | 2 00 |
| | 3d do | 1 00 |
| 7. | Best 12 table pears, named [Winter sort] | 3 00 |
| | 2d do | 2 00 |
| | 3d do | 1 00 |
| 8. | Best 12 plums, named, [Dessert] | 3 00 |
| | 2d do | 2 00 |
| | 3d do | 1 00 |
| 9. | Best 12 baking plums, named | 3 00 |
| | 2d do | 2 00 |
| | 3d do | 1 00 |
| 10. | Best quart of Damsons [English] | 3 00 |
| | 2d do | 2 00 |
| | 3d do | 1 00 |
| 11. | Best 12 peaches, grown in open air, named | 3 00 |
| | 2d do | 2 00 |
| | 3d do | 1 00 |
| 12. | Best 10 varieties of peaches, grown in open air (3 of each) | 4 00 |
| | 2d do | 3 00 |
| | 3d do | 2 00 |
| 13. | Best 12 quinces | 2 00 |
| | 2d do | 1 50 |
| | 3d do | Trans. |
| 14. | Best 3 clusters of grapes (hot-house) | 4 00 |
| | 2d do | 3 00 |
| | 3d do | 2 00 |
| 15. | Best three clusters black Hamburgh (hot-house) | 4 00 |
| | 2d do | 3 00 |
| | 3d do | 2 00 |
| 16. | Best four clusters black grapes, grown in open air | 2 00 |
| | 2d do | 1 50 |
| | 3d do | 1 00 |
| 17. | Best four clusters white grapes, grown in open air | 2 00 |
| | 2d do | 1 50 |
| | 3d do | 1 00 |
| 18. | Best four clusters grapes, of any other sorts (open air) | 2 00 |
| | 2d do | 1 50 |
| | 3d do | Trans. |
| 19. | Best and heaviest 2 bunches of grapes, (open air) | 3 00 |
| | 2d do | 2 00 |
| | 3d do | 1 50 |
| 20. | Best collection of grapes, grown in open air, 2 clusters of each sort | 4 00 |
| | 2d do | 3 00 |
| | 3d do | 2 00 |
| 21. | Best Water Melon | 2 00 |
| | 2d do | 1 50 |
| | 3d | Trans. |
| 22. | Best Musk Melon of any sort | 2 00 |
| | 2d do | 1 50 |
| | 3d do | 1 00 |
| 23. | Best 6 citrons for preserving | 2 00 |
| | 2d do | 1 50 |
| | 3d do | Trans. |
| 24. | Best 6 nectarines | 2 00 |
| | 2d do | 1 50 |
| | 3d do | 1 00 |
| 25. | Best display of fruit, the growth of exhibiter, (distinct from other entries) not more than three specimens of each sort | 10 00 |
| | 2d do | 6 00 |
| | 3d do | 4 00 |
| 26. | Extra entries. | |

CLASS XXIX—GARDEN VEGETABLES.

| | | |
|---|---|---|
| 1. | Best 12 roots of salsify | 2 00 |
| | 2d do | 1 50 |
| | 3d do | 1 00 |
| 2. | Best 4 heads broccoli | 2 00 |
| | 2d do | 1 50 |
| | 3d do | 1 00 |
| 3. | Best 4 heads cauliflower | 2 00 |
| | 2d do | 1 50 |
| | 3d do | 1 00 |
| 4. | Best 4 heads cabbage (summer) | 2 00 |
| | 2d do | 1 50 |
| | 3d do | 1 00 |
| 5. | Best 4 heads cabbage (winter) | 2 00 |
| | 2d do | 1 50 |
| | 3d do | 1 00 |
| 6. | Best 4 sorts winter cabbage, including savoys, 2 of each sort | 3 00 |
| | 2d do | 2 00 |
| | 3d do | 1 00 |
| 7. | Best 4 heads red cabbage | 2 00 |
| | 2d do | 1 50 |
| | 3d do | 1 00 |
| 8. | Best 12 carrots for table, long red | 2 00 |
| | 2d do | 1 50 |
| | 3d do | 1 00 |
| 9. | Best 12 early horn carrots | 2 00 |
| | 2d | 1 50 |
| | 3d | 1 00 |
| 10. | Best 12 table parsnips | 2 00 |
| | 2d do | 1 50 |
| | 3d do | 1 00 |
| 11. | Best 6 roots of white celery | 2 00 |
| | 2d do | 1 50 |
| | 3d do | 1 00 |
| 12. | Best 6 roots of red celery | 2 00 |
| | 2d do | 1 50 |
| | 3d do | 1 00 |
| 13. | Best dozen capsicums | 2 00 |
| | 2d do | 1 50 |
| | 3d do | Trans. |

| *Sect.* | $ c. |
|---|---|
| 14. Best collection of capsicums | 3 00 |
| 2d do | 2 00 |
| 3d do | 1 50 |
| 15. Best 6 egg plants, purple | 2 00 |
| 2d do | 1 50 |
| 3d do | 1 00 |
| 16. Best 12 tomatoes | 2 00 |
| 2d do | 1 50 |
| 3d do | Trans. |
| 17. Best assorted collection of tomatos, 6 of each sort | 3 00 |
| 2d do | 2 00 |
| 3d do | 1 50 |
| 18. Best 12 blood beets | 2 00 |
| 2d do | 1 50 |
| 3d do | Trans. |
| 19. Best peck of white onions | 2 00 |
| 2d do | 1 50 |
| 3d do | 1 00 |
| 20. Best peck of yellow onions | 2 00 |
| 2d do | 1 50 |
| 3d do | Trans. |
| 21. Best peck of red onions | 2 00 |
| 2d do | 1 50 |
| 3d do | 1 00 |
| 22. Best peck potato onions | 2 00 |
| 2d do | 1 50 |
| 3d do | 1 00 |
| 23. Best 12 white turnips (table) | 2 00 |
| 2d do | 1 50 |
| 3d do | Trans. |
| 24. Best 12 yellow turnips, (table) | 2 00 |
| 2d do | 1 50 |
| 3d do | 1 00 |
| 25. Best 12 ears sweet | 2 00 |
| 2d do | 1 50 |
| 3d do | Trans. |
| 26. Best and greatest variety of early potatoes, half peck of each sort named | 3 00 |
| 2d do | 2 00 |
| 3d do | 1 00 |
| 27. Best 4 squashes, (table) | 2 00 |
| 2d do | 1 50 |
| 3d do | 1 00 |
| 28. Best and greatest variety of vegetables, [distinct from other entries], each kind named | 4 00 |
| 2d do | 3 00 |
| 3d do | 2 00 |
| 29. Extra entries. | |

CLASS XXX.—PLANTS AND FLOWERS.

| | |
|---|---|
| 1. Best dozen dahlias, named | 2 00 |
| 2d do | 1 50 |
| 3d do | 1 00 |
| 2. Best and largest col'n of dahlias | 5 00 |
| 2d do | 4 00 |
| 3d do | 3 00 |
| 3. Best bouquet of cut flowers, (for table) | 2 00 |
| 2d do | 1 50 |
| 3d do | 1 00 |
| 4. Best hand bouquet | 2 00 |
| 2d do | 1 50 |
| 3d do | 1 00 |
| 5. Best collection of green house plants, not less than 12 specimens in flower | 10 00 |
| 2d do | 6 00 |
| 3d do | 4 00 |
| 6. Best twelve pansies | 2 00 |
| 2d do | 1 50 |
| 3d do | 1 00 |
| 7. Best six fuchsias, in flower | 3 00 |
| 2d do | 2 00 |
| 3d do | 1 00 |
| 8. Best collection of annuals in bloom | 2 20 |
| 2d do | 1 50 |
| 3d do | 1 00 |
| 9. Best six cockscombs | 2 00 |
| 2d do | 1 50 |
| 3d do | 1 00 |
| 10. Best 6 balsams in bloom | 2 00 |
| 2d do | 1 50 |
| 3d do | 1 00 |
| 11. Best collection of asters | 2 00 |
| 2d do | 1 50 |
| 3d do | 1 00 |
| 12. Best collection of 10 weeks' stock | 2 00 |
| 2d do | 1 50 |
| 3d do | 1 00 |
| 13. Best collection of hybrid perpetual roses, not less than 12 blooms | 2 00 |
| 2d do | 1 50 |
| 3d do | 1 00 |
| 14. Best floral ornament or design | 5 00 |
| 2d do | 4 00 |
| 3d do | 3 00 |
| 15. Best collection of verbenas, not less than 12 varieties | 3 00 |
| 2d do | 2 00 |
| 3d do | 1 00 |
| 16. Best 6 petunias | 2 00 |
| 2d do | 1 50 |
| 3d do | 1 00 |
| 17. Best collection perennial phloxes | 2 00 |
| 2d do | 1 50 |
| 3d do | 1 00 |
| 18. Best 6 hardy shrubs | 2 00 |
| 2d do | 1 50 |
| 3d do | 1 00 |
| 19. Best collection holly hocks | 2 00 |
| 2d do | 1 50 |
| 3d do | 1 00 |
| 20. Best display of plants in flower, distinct from other entries | 10 00 |
| 2d do | 6 00 |
| 3d do | 4 00 |
| 21. Best collection of native plants, dried and named | 6 00 |
| 2d do | 4 00 |
| 3d do | 2 00 |
| 22. Best specimen of useful and ornamental rustic work for the garden | 4 00 |
| 2d do | 3 00 |
| 3d do | 2 00 |
| 23. Extra entries. | |

Competitors in classes 28, 29, and 30, are requested to deliver their various productions in a clean and proper state for exhibition.

| Sect. | | $ c. |
|---|---|---|
| | CLASSS XXXI.—DAIRY RRODUCTS, &C. | |
| 1. | Best firkin of butter, in shipping order, not less than 56 lbs | 12 00 |
| | 2d do | 10 00 |
| | 3d do | 8 00 |
| | 4th do | 6 00 |
| 2. | Best butter, not less than 28 lbs., in firkins, crocks, or tubs | 8 00 |
| | 2d do | 6 00 |
| | 3d do | 4 00 |
| | 4th do | 3 00 |
| 3. | Best cheese, not less than 30 lbs | 10 00 |
| | 2d do | 8 00 |
| | 3d do | 6 00 |
| | 4th do | 4 00 |
| 4. | Best two stilton cheese, not less than 14 lbs each | 10 00 |
| | 2d do | 8 00 |
| | 3d do | 6 00 |
| | 4th do | 4 00 |
| 5. | Best honey, in the comb, not less than 10 lbs | 3 00 |
| | 2d do | 2 00 |
| | 3d do | Trans. |
| 6. | Best jar of clear honey | 4 00 |
| | 2d do | 2 00 |
| | 3d do | Trans. |
| 7. | Extra entries. | |

Persons taking premiums on dairy products will be required to furnish statements of the mode of manufacture, including the breed and number of cows, size of farm, description of dairy premises, treatment of milk, salt, &c., quantity of produce, and any other practical information that they may be able to afford, before being paid the amount of premium.

CLASS XXXII.—AGRICULTURAL IMPLEMENTS, WORKED BY HORSE OR OTHER POWER.

| | | |
|---|---|---|
| 1. | Best iron plough, diploma and | 12 00 |
| | 2d do | 8 00 |
| | 3d do | 4 00 |
| 2. | Best wooden plough, diploma and | 12 00 |
| | 2d do | 8 00 |
| | 3d | 4 00 |
| | [The ploughs to be tested on the field, on the Tuesday, by a Committee appointed for the purpose, at the Exhibition; ease of draught and efficiency of work to be considered.] | |
| 3. | Best subsoil plough, diploma and | 12 00 |
| | 2d do | 8 00 |
| | 3d do | 4 00 |
| 4. | Best double shear trench plough. | 10 00 |
| | 2d do | 6 00 |
| | 3d do | 4 00 |
| 5. | Best double mould plough | 10 00 |
| | 2d do | 6 00 |
| | 3d do | 4 00 |
| 6. | Best pair of harrows | 6 00 |
| | 2d do | 4 00 |
| | 3d do | 2 00 |
| 7. | Best horse-power thresher and separator, diploma and | 20 00 |
| | 2d do | 12 00 |
| | 3d do | 8 00 |
| 8. | Best grain drill, diploma and | 12 00 |
| | 2d do | 8 00 |
| | 3d do | 4 00 |
| 9. | Best straw cutter | 5 00 |
| | 2d do | 4 00 |
| | 3d do | 3 00 |
| 10. | Best smut machine | 6 00 |
| | 2d do | 3 00 |
| 11. | Best portable grist mill | 12 00 |
| | 2d do | 8 00 |
| | 3d do | 4 00 |
| 12. | Best grain cracker | 8 00 |
| | 2d do | 6 00 |
| | 3d do | 4 00 |
| 13. | Best corn and cob crusher | 4 00 |
| | 2d do | 3 00 |
| | 3d do | 2 00 |
| 14. | Best clover cleaning machine | 12 00 |
| | 2d do | 8 00 |
| | 3d do | 4 00 |
| 15. | Best cider mill and press | 12 00 |
| | 2d do | 8 00 |
| 16. | Best two-horse waggon | 12 00 |
| | 2d do | 8 00 |
| | 3d do | 4 00 |
| 17. | Best one-horse light market wagon | 10 00 |
| | 2d do | 8 00 |
| | 3d do | 4 00 |
| 18. | Best horse cart | 6 00 |
| | 2d do | 4 00 |
| | 3d do | 2 00 |
| 19. | Best farm sleigh | 8 00 |
| | 2d do | 4 00 |
| | 3d do | 2 00 |
| 20. | Best horse rake | 4 00 |
| | 2d do | 3 00 |
| | 3d do | 2 00 |
| 21. | Best metal roller | 11 00 |
| | 2d do | 8 00 |
| 22. | Best wooden roller | 10 00 |
| | 2d do | 5 00 |
| 23. | Best stump extractor | 8 00 |
| | 2d do | 4 00 |
| 24. | Best reaping machine, dip. and | 20 00 |
| | 2d do | 12 00 |
| | 3d do | 8 00 |
| 25. | Best mowing machine, dip. and | 20 00 |
| | 2d do | 12 00 |
| | 3d do | 8 00 |
| 26. | Best combined mower and reaper dip. and | 20 00 |
| | 2d do | 12 00 |
| | 3d do | 8 00 |
| 27. | Best potato digger | 3 00 |
| | 2d do | 2 00 |
| | 3d do | Trans |
| 28. | Best field or two-horse cultivator. | 12 00 |
| | 2d do | 8 00 |
| | 3d do | 4 00 |
| 29. | Best horse hoe, or single horse cultivator | 4 00 |
| | 2d do | 3 00 |
| 30. | Best post hole borer | 12 00 |
| | 2d do | 8 00 |
| 31. | Best brick making machine | 10 00 |
| | 2d do | 6 00 |

| Sect. | | $ c. |
|---|---|---|
| 32. | Best flax dressing machine | 20 00 |
| | 2d do | 20 00 |
| | 3d do | 10 00 |

CLASS XXXIII.—AGRICULTURAL TOOLS AND IMPLEMENTS, CHIEFLY FOR HAND USE.

| | | |
|---|---|---|
| 1. | Best fanning mill, diploma and | 6 00 |
| | 2d do | 4 00 |
| | 3d do | 2 00 |
| 2. | Best seed drill or barrow | 4 00 |
| | 2d do | 3 00 |
| | 3d do | 2 00 |
| 3. | Best straw cutter | 5 00 |
| | 2d do | 4 00 |
| | 3d do | 3 00 |
| 4. | Best machine for cutting roots for stock | 6 00 |
| | 2d do | 4 00 |
| | 3d do | 2 00 |
| 5. | Best cheese press | 8 00 |
| | 2d do | 6 00 |
| 6. | Best churn | 3 00 |
| | 2d do | 2 00 |
| 7. | Best garden walk or lawn roller | 4 00 |
| | 2d do | 2 00 |
| | 3d do | Trans |
| 8. | Best thistle extractor | 2 00 |
| | 2d do | 1 00 |
| | 3d do | Trans |
| 9. | Best farm gate | 3 00 |
| | 2d do | 2 00 |
| | 3d do | Trans |
| 10. | Best specimen wire fencing, not less than 2 rods, erected on the ground | 8 00 |
| | 2d do | 6 00 |
| | 3d do | 4 00 |
| 11. | Best wooden pump | 4 00 |
| | 2d do | 3 00 |
| 12. | Best half-dozen hay rakes | 3 00 |
| | 2d do | 2 00 |
| | 3d do | 1 00 |
| 13. | Best half-dozen manure forks | 3 00 |
| | 2d do | 2 00 |
| | 3d do | 1 00 |
| 14. | Best half-dozen hay forks | 3 00 |
| | 2d do | 2 00 |
| | 3d do | Trans |
| 15. | Best half-dozen scythe snaiths | 3 00 |
| | 2d do | 2 00 |
| | 3d do | Trans |
| 16. | Best ox-yoke and bows | 2 00 |
| | 2d do | 1 00 |
| | 3d do | Trans |
| 17. | Best grain cradle | 2 00 |
| | 2d do | 1 00 |
| 18. | Best half-dozen grain shovels | 3 00 |
| | 2d do | 2 00 |
| | 3d do | 1 00 |
| 19. | Best half-dozen iron (flat) shovels | 3 00 |
| | 2d do | 2 00 |
| | 3d do | 1 00 |
| 20. | Best half-dozen spades | 3 00 |
| | 2d do | 2 00 |
| | 3d do | 1 00 |
| 21. | Best half-dozen steel hoes | 3 00 |
| | 2d do | 2 00 |
| | 3d do | Trans |
| 22. | Best half-dozen grass scythes | 3 00 |
| | 2d do | 2 00 |
| | 3d do | 1 00 |
| 23. | Best half-dozen cradle scythes | 3 00 |
| | 2d do | 2 00 |
| | 3d do | 1 00 |
| 24. | Best machine for making drain tiles, dip. and | 10 00 |
| | 2d do | 6 00 |
| 25. | Best straw fork, wood | 2 00 |
| | 2d do | 1 00 |
| | 3d do | Trans |
| 26. | Extra entries. | |

CLASS XXXIV.—CATTLE FOOD—MANURES, AND MISCELLANEOUS.

| | | |
|---|---|---|
| 1. | Best specimen Oil Cake | 4 00 |
| | 2d do | 2 00 |
| 2. | Best specimen prepared food for cattle | 4 00 |
| | 2d do | 2 00 |
| 3. | Best specimen ground bones for manure | 4 00 |
| | 2d do | 2 00 |
| 4. | Best specimen other artificial manure | 4 00 |
| | 2d do | 2 00 |
| 5. | Extras. | |

CLASS XXXV.—FOREIGN AGRICULTURAL IMPLEMENTS.

Foreign manufactured implements will be admitted for exhibition only; but diplomas will be awarded to those of particular merit.

## DEPARTMENT SECOND.

ARTS AND MANUFACTURES, LADIES' WORK, &C. &C.

CLASS XXXVI.—CABINET WARE AND OTHER WOOD MANUFACTURES.

| | | |
|---|---|---|
| 1. | Beehive, best model | 3 00 |
| 2. | Board Rule | 2 00 |
| 3. | Brooms, best half-dozen corn | 2 00 |
| 4. | Broom handles, best dozen, turned | 2 00 |
| 5. | Canadian Woods, best collection of | 20 00 |
| | 2d do | 10 00 |
| 6. | Centre Table, best | 6 00 |
| | 2d do | 4 00 |
| 7. | Cooper's work, best specimen | 5 00 |
| | 2d do | 3 00 |
| 8. | Curled hair, best 10 lbs of | 3 00 |
| | 2d do | 2 00 |
| 9. | Dining Table, best | 5 00 |
| | 2d do | 3 00 |
| 10. | Dining-room chairs, best six | 5 00 |
| | 2d do | 3 00 |
| 11. | Drawing-room sofa, best | 8 00 |
| | 2 do | 5 00 |

| Sect. | $ | c. |
|---|---|---|
| 12. Drawing-room chairs, best set of | 8 | 00 |
| 2d do | 5 | 00 |
| 13. Door, best 4 or 6 pannelled | 3 | 00 |
| 2d do | 2 | 00 |
| 14. Flour barrels, best half-dozen | 3 | 00 |
| 2d do | 2 | 00 |
| 15. Machine-wrought moulding, best 100 feet of | 3 | 00 |
| 2d do | 2 | 00 |
| 16. Machine-wrought flooring, best 100 feet of | 3 | 00 |
| 2d do | 2 | 00 |
| 17. Ottoman, best | 3 | 00 |
| 2d do | 2 | 00 |
| 18. School Desk and Chairs, best [price considered] | 4 | 00 |
| 19. Shingles, split, best 2 bundles of | 3 | 00 |
| 2d do | 2 | 00 |
| 20. Shingles, sawed, best 2 bundles of | 3 | 00 |
| 2d do | 2 | 00 |
| 21. Side-board, best | 6 | 00 |
| 2d do | 4 | 00 |
| 22. Spinning-wheel, best | 2 | 00 |
| 2d do | 1 | 00 |
| 23. Turning in wood, best collection of specimens of | 6 | 00 |
| 2d do | 4 | 00 |
| 24. Veneers from Canadian woods, best | 5 | 00 |
| 2d do | 3 | 00 |
| 25. Wash-tubs, best three | 2 | 00 |
| 2d do | 1 | 00 |
| 26. Wash-boards, zinc covered, best half-dozen | 3 | 00 |
| 27. Wash-boards, not covered, best half-dozen | 2 | 00 |
| 28. Willow-ware, best half-dozen specimens of | 3 | 00 |
| 2d do | 2 | 00 |
| 29. Wooden Pails, best half-dozen | 2 | 00 |
| 2d do | 1 | 00 |
| 30. Window Sash, hung in frame, best, [12 lights] | 4 | 00 |
| 2d do | 3 | 00 |
| 31. Best collection of handles for axes, adzes, and carpenters, framers, blacksmiths, gun-smiths, coopers, and watch-makers' tools | 10 | 00 |
| 2d do | 5 | 00 |
| 32. Extra entries. | | |

CLASS XXXVII.—CARRIAGES, SLEIGHS, &c.

| | | |
|---|---|---|
| 1. Axle, best wrought iron | 3 | 00 |
| 2. Bent Shafts, best half-dozen | 3 | 00 |
| 3. Carriage Hubs, best 2 pairs of | 3 | 00 |
| 4. Carriage Rims or Felloes, best specimens of | 3 | 00 |
| 5. Carriage-spokes, machine made, best dozen | 3 | 00 |
| 6. Carriage, best two horse pleasure | 10 | 00 |
| 2d do | 6 | 00 |
| 7. Carriage, best 1 horse pleasure | 8 | 00 |
| 2d do | 5 | 00 |
| 8. Child's Carriage, best, [price considered] | 3 | 00 |
| 9. Sleigh, best 2 horse pleasure | 8 | 00 |
| 2d do | 5 | 00 |
| 10. Sleigh, best 1 horse pleasure | 6 | 00 |
| 2d do | 4 | 00 |
| 11. Springs, best pair of steel carriage | 3 | 00 |
| 12. Extra entries. | | |

CLASS XXXVIII.—FINE ARTS.

*Professional List—Oil.*

| | | |
|---|---|---|
| 1. Animals, best, [grouped or single] | 12 | 00 |
| 2d do | 6 | 00 |
| 2. Historical Painting, best, Canadian subject | 12 | 00 |
| 2d do | 6 | 00 |
| 3. Landscape, best, Canadian subject | 12 | 00 |
| 2d do | 6 | 00 |
| 4. Marine Painting, best, Canadian subject | 12 | 00 |
| 2d do | 6 | 00 |
| 5. Original Composition, best other | 12 | 00 |
| 2d do | 6 | 00 |
| 6. Portrait, best | 10 | 00 |
| 2d do | 6 | 00 |

*In Water Colors.*

| | | |
|---|---|---|
| 7. Animals, best, [grouped or single] | 8 | 00 |
| 2d do | 5 | 00 |
| 8. Flowers, best, (grouped or single) | 5 | 00 |
| 2d do | 3 | 00 |
| 9. Landscape, best, Canadian subject | 8 | 00 |
| 2d do | 5 | 00 |
| 10. Marine View, best, Canadian subject | 8 | 00 |
| 2d do | 5 | 00 |
| 11. Miniature, best | 6 | 00 |
| 2d do | 4 | 00 |
| 12. Original Composition, best other | 8 | 00 |
| 2d do | 5 | 00 |
| 13. Portrait, best other | 6 | 00 |
| 2d do | 4 | 00 |

*Pencil, Crayon, &c.*

| | | |
|---|---|---|
| 14. Colored Crayon, best | 5 | 00 |
| 2 do | 3 | 00 |
| 15. Crayon Drawing, best | 5 | 00 |
| 2d do | 3 | 00 |
| 16. Pencil Drawing, best | 5 | 00 |
| 2d do | 3 | 00 |
| 17. Pen and Ink sketch, best | 5 | 00 |
| 2d do | 3 | 00 |
| 18. Portrait, best pencil | 5 | 00 |
| 2d do | 3 | 00 |
| 19. Portrait, best crayon | 5 | 00 |
| 2d do | 3 | 00 |

*Amateur List—Oil.*

| | | |
|---|---|---|
| 20. Animals, best, (grouped or single) | 8 | 00 |
| 2d do | 5 | 00 |
| 21. Historical Painting, best, Canadian subject | 8 | 00 |
| 22. Landscape, best, Canadian subject | 8 | 00 |
| 2d do | 5 | 00 |
| 23. Marine Painting, best, Canadian subject | 5 | 00 |

| Sect. | | $ c. |
|---|---|---|
| 24. | Portrait, best | 5 00 |
| | 2d do | 3 00 |
| | *In Water Colours.* | |
| 25. | Animals, best, (grouped or single) | 6 00 |
| | 2d do | 4 00 |
| 26. | Flowers, best | 4 00 |
| | 2d do | 3 00 |
| 27. | Landscape, best, Canadian subject | 6 00 |
| | 2d do | 4 00 |
| 28. | Marine View, best, Canadian subject | 6 00 |
| | 2d do | 4 00 |
| 29. | Miniature, best | 5 00 |
| | 2d do | 3 00 |
| 30. | Portrait, best | 5 00 |
| | 2d do | 3 00 |
| | *Pencil, Crayon, &c.* | |
| 31. | Coloured Crayon, best | 4 00 |
| | 2d do | 3 00 |
| 32. | Crayon Drawing, best | 4 00 |
| | 2d do | 3 00 |
| 33. | Pencil Drawing, best | 4 00 |
| | 2d do | 3 00 |
| 34. | Pen and Ink Sketch, best | 4 00 |
| | 2d do | 3 00 |
| 35. | Portrait, best Pencil | 4 00 |
| | 2d do | 3 00 |
| 36. | Portrait, best Crayon | 4 00 |
| | 2d do | 3 00 |
| | *Architectural Drawing, Modelling, Engraving, &c., &c.* | |
| 37. | Architectural Drawing, best | 6 00 |
| | 2d do | 4 00 |
| 38. | Architectural Drawing, best perspective | 6 00 |
| | 2d do | 4 00 |
| 39. | Ambrotypes, best collection of | 6 00 |
| | 2d do | 4 00 |
| 40. | Carving in wood, best specimen of | 8 00 |
| | 2d do | 4 00 |
| 41. | Carving in stone, best specimen of | 8 00 |
| | 2d do | 4 00 |
| 42. | Carving and gilding, best specimen of | 8 00 |
| | 2d do | 5 00 |
| 43. | Composition of natural foliage [Canadian] applicable to architectural details, best drawing | 8 00 |
| | 2d do | 5 00 |
| 44. | Electrotyping, best specimen of | 4 00 |
| 45. | Engraving [block with proof] best wood | 6 00 |
| | 2d do | 4 00 |
| 46. | Engraving on Copper, best | 6 00 |
| | 2d do | 4 00 |
| 47. | Engraving on Steel, best | 6 00 |
| | 2d do | 4 00 |
| 48. | Engraving, best seal | 8 00 |
| | 2d do | 4 00 |
| 49. | Geometrical Drawing of Engine or millwright work, best col'd | 6 00 |
| | 2d do | 4 00 |
| 50. | Lithographic Drawing, best | 6 00 |
| | 2d do | 4 00 |
| 51. | Lithographic Drawing, best col'd | 8 00 |
| 52. | Lithographic Drawing on Canadian stone | 6 00 |
| 53. | Machinery, best perspective Drawing of | 6 00 |
| | 2d do | 4 00 |
| 54. | Modelling in plaster, best specimen | 8 00 |
| | 2d do | 5 00 |
| 55. | Modelling in plaster of natural foliage (Canadian) applicable to architectural details, best specimen of | 8 00 |
| | 2d do | 5 00 |
| 56. | Penmanship, best specimen of ornamental | 4 00 |
| | 2d do | 2 00 |
| 57. | Photographs, best collection of | 8 00 |
| | 2d do | 5 00 |
| 58. | Stained glass, best specimen of | 8 00 |
| | 2d do | 5 00 |
| 59. | Surveyor's plans, best | 6 00 |
| | 2d do | 4 00 |
| 60. | Extra entries. | |

CLASS XXXIX.—GROCERIES, PROVISIONS, &C.

| | | |
|---|---|---|
| 1. | Bacon—two sides—best [state mode of curing] | 3 00 |
| | 2d do | 2 00 |
| 2. | Barley—pot and pearl—best samples of | 3 00 |
| | 2d do | 2 00 |
| 3. | Biscuits, best collection of specimens of | 4 00 |
| 4. | Blacking, best samples of shoe | 2 00 |
| 5. | Bottled Fruits, best collection of | 3 00 |
| | 2d do | 2 00 |
| 6. | Bottled Pickles, best collection of | 3 00 |
| | 2d do | 2 00 |
| 7. | Buckwheat Flour, best sample of | 3 00 |
| | 2d do | 2 00 |
| 8. | Candles, best collection of | 3 00 |
| | 2d do | 2 00 |
| 9. | Cayenne pepper, [from capsicums grown in the Province] best jar | 2 00 |
| 10. | Chicory, best 20 lbs of | 4 00 |
| | 2d do | 2 00 |
| 11. | Confectionery, best collection of | 5 00 |
| | 2d do | 3 00 |
| 12. | Flour, best sample of | 6 00 |
| | 2d do | 4 00 |
| 13. | Glue—14 lbs—best sample of | 4 00 |
| | 2d do | 2 00 |
| 14. | Hams, best two [state mode of curing] | 3 00 |
| | 2d do | 2 00 |
| 15. | Indian corn meal, best sample of | 3 00 |
| | 2d do | 2 00 |
| 16. | Isinglass, best sample of | 2 00 |
| 17. | Matches, best friction | 2 00 |
| | 2d do | 1 00 |
| 18. | Medicinal herbs, roots and plants [native growth] best collection | 8 00 |
| | 2d do | 4 00 |

| Sect. | | $ | c. |
|---|---|---|---|
| 19. | Mustard, best jar of | 3 | 00 |
| 20. | Oatmeal, best sample of | 3 | 00 |
| | 2d do | 2 | 00 |
| 21. | Oils extracted from plants, best specimens of | 3 | 00 |
| | 2d do | 2 | 00 |
| 22. | Oils—linseed and rape—best specimen of | 3 | 00 |
| | 2d do | 2 | 00 |
| 23. | Preserves, best six kinds of | 3 | 00 |
| | 2d do | 2 | 00 |
| 24. | Preserved meats, best can of | 3 | 00 |
| | 2d do | 2 | 00 |
| 25. | Sauces for table use, best lot of | 3 | 00 |
| | 2d do | 2 | 00 |
| 26. | Soaps—28 lbs—best box of | 3 | 00 |
| | 2d do | 2 | 00 |
| 27. | Soaps—collection assorted—best fancy | 5 | 00 |
| | 2d do | 3 | 00 |
| 28 | Starch, best 12 lbs of potato | 3 | 00 |
| 29. | do do corn | 3 | 00 |
| 30. | do do flour | 3 | 00 |
| 31. | Sugar, best 30 lbs of maple | 4 | 00 |
| 32. | do do beet root | 4 | 00 |
| 33. | do best 20 lbs of corn stalk | 4 | 00 |
| 34. | do best loaf of refined | 4 | 00 |
| | do do do | 2 | 00 |
| 35. | Tobacco—14 lbs—best Canadian manufactured | 4 | 00 |
| | 2d do | 2 | 00 |
| 36. | Extra entries. | | |

CLASS XL.—HATS, FURS, AND WEARING APPAREL.

| | | | |
|---|---|---|---|
| 1. | Business coat, best gentleman's | 4 | 00 |
| | 2d do | 3 | 00 |
| 2. | Fur cap, best gentleman's | 3 | 00 |
| | 2d do | 2 | 00 |
| 3. | Fur gloves, mits or gauntlets, best | 3 | 00 |
| | 2d do | 2 | 00 |
| 4. | Fur sleigh robe, best | 4 | 00 |
| | 2d do | 3 | 00 |
| 5. | Gloves and mits, best buckskin | 2 | 00 |
| | 2d do | 1 | 00 |
| 6. | Gloves and and mits, best of any other leather | 2 | 00 |
| | 2d do | 1 | 00 |
| 7. | Gloves and mits, best, lined with wool | 2 | 00 |
| | 2d do | 1 | 00 |
| 8. | Over coat, best gentleman's | 4 | 00 |
| | 2d do | 2 | 00 |
| 9. | Pantaloons, best | 3 | 00 |
| | 2d do | 2 | 00 |
| 10. | Silk hat, best | 3 | 00 |
| | 2d do | 2 | 00 |
| 11. | Extra entries. | | |

CLASS XLI.—INDIAN PRIZES.

| | | | |
|---|---|---|---|
| 1. | Basket, best fruit | 2 | 00 |
| | 2d do | 1 | 00 |
| 2. | Basket, best clothes | 2 | 00 |
| | 2d do | 1 | 00 |
| 3. | Basket, best hand | 2 | 00 |
| | 2d do | 1 | 00 |
| 4. | Buckskin mittens, best pair of | 2 | 00 |
| | 2d do | 1 | 00 |
| 5. | Canoe, best bark | 4 | 00 |
| | 2d do | 2 | 00 |
| 6. | Cradle, best Indian | 3 | 00 |
| | 2d do | 2 | 00 |
| 7. | Deer skin, best dressed | 2 | 00 |
| | 2d do | 1 | 00 |
| 8. | Mocassins (plain) best pair of | 2 | 00 |
| | 2d do | 1 | 00 |
| 9. | Mocassins, worked with porcupine quills, best pair of | 3 | 00 |
| | 2d do | 2 | 00 |
| 10. | Mocassins, worked with beads, best pair of | 3 | 00 |
| | 2d do | 2 | 00 |
| 11. | Paddles, best four | 3 | 00 |
| | 2d do | 2 | 00 |
| 12. | Pipe of peace, best | 3 | 00 |
| | 2d do | 2 | 00 |
| 13. | Pipe of war, best | 3 | 00 |
| | 2d do | 2 | 00 |
| 14. | Rice, 14 lbs, best sample of | 2 | 00 |
| | 2d do | 2 | 00 |
| 15. | Snow shoes—common size, best pair of | 3 | 00 |
| | 2d do | 2 | 00 |
| 16. | Snow shoes, eight inches long, best pair of | 2 | 00 |
| | 2d do | 1 | 00 |
| 17. | Sugar, 14 lbs. best sample of | 3 | 00 |
| | 2d do. | 2 | 00 |
| 18. | Tobacco Pouch, best, worked with porcupine quills | 1 | 00 |
| 19. | Extras. | | |

CLASS XLII.—LEATHER, WHIPS, INDIA RUBBER, &C.

| | | | |
|---|---|---|---|
| 1. | Boots, best specimens of Gentlemen's | 4 | 00 |
| | 2d do | 2 | 00 |
| 2. | Boots, best specimen of ladies | 4 | 00 |
| | 2d do | 2 | 00 |
| 3. | Boot maker's trees and lasts, best collection of | 5 | 00 |
| | 2d do | 3 | 00 |
| 4. | Harness, double, best set of carriage | 7 | 00 |
| | 2d do | 5 | 00 |
| 5. | Harness, single, best set of carriage | 6 | 00 |
| | 2d do | 4 | 00 |
| 6. | Harness, best set of team | 5 | 00 |
| | 2d do | 3 | 00 |
| 7. | Harness, best set of cart | 4 | 00 |
| | 2d do | 2 | 00 |
| 8. | Hames, iron cased, best 3 pairs of | 5 | 00 |
| | 2d do | 3 | 00 |
| 9. | Hames, wooden cased, best six pairs of | 5 | 00 |
| | 2d do | 3 | 00 |
| 10. | Hose and joints, best 50 feet of copper rivetted ($2\frac{3}{4}$ inches in diameter) engine | 6 | 00 |
| | 2d do | 4 | 00 |
| 11. | Indian rubber goods, best assortment of | | 8 |

| Sect. | $ c. |
|---|---|
| 12. Hog skins for saddles, best 3 | 4 00 |
| 2d do | 3 00 |
| 13. Skirting for saddles, best 3 sides of | 4 00 |
| 2d do | 3 00 |
| 14. Brown strap, best 3 sides of | 4 00 |
| 2d do | 2 00 |
| 15. Brown bridle, best 3 sides of | 4 00 |
| 2d do | 2 00 |
| 16. Harness leather, best 3 sides of | 4 00 |
| 2d do | 2 00 |
| 17. Carriage covers, best 2 skins for | 4 00 |
| 2d do | 2 00 |
| 18. Sole leather, best 3 sides of | 4 00 |
| 2d do | 2 00 |
| 19. Upper leather, best 3 sides of | 4 00 |
| 2d do | 2 00 |
| 20. Kip skin, best 3 sides | 4 00 |
| 2d do | 2 00 |
| 21. Cordovan, best 3 skins of | 4 00 |
| 2d do | 2 00 |
| 22. Linings, best six skins of | 4 00 |
| 2d do | 2 00 |
| 23. Calf skin, best three skins of | 4 00 |
| 2d do | 2 00 |
| 24. Sheep skins, best six coloured | 4 00 |
| 2d do | 2 00 |
| 25. Calf skins, best 3 morocco | 4 00 |
| 2d do | 2 00 |
| 26. Patent Leather for carriage or harness work, best 20 feet of | 6 00 |
| 2d do | 4 00 |
| 27. Patent leather for bootmakers, best 20 feet of | 6 00 |
| 2d do | 4 00 |
| 28. Book binder's leather, best assortment of | 6 00 |
| 2d do | 4 00 |
| 29. Belt leather, best 30 lbs. of | 4 00 |
| 2d do | 2 00 |
| 30. Lacing leather, best hide of | 2 00 |
| 31. Deer skin, best dressed | 2 00 |
| 32. Dog skin, best dressed | 2 00 |
| 33. Portmanteau, best travelling | 6 00 |
| 2d do | 4 00 |
| 34. Saddle, best ladies' | 6 00 |
| 2d do | 4 00 |
| 35. Saddle, best gentleman's | 6 00 |
| 2d do | 4 00 |
| 36. Saddle tree, best ladies' | 4 00 |
| 2d do | 2 00 |
| 37. Saddle tree, best gentleman's | 4 00 |
| 2d do | 2 00 |
| 38. Saddle tree, best cart | 2 00 |
| 2d do | 1 00 |
| 39. Shoe Pegs, best assortment of | 3 00 |
| 2d do | 2 00 |
| 40. Trunk, [covered with leather] best wood | 4 00 |
| 2d do | 3 00 |
| 41. Whips, [collection assorted] best specimens of | 6 00 |
| 2d do | 4 00 |
| 42. Whip thongs, best assortment of | 3 00 |
| 2d do | 2 00 |
| 43. Extra entries. | |

| Sect. | $ c. |
|---|---|
| CLASS XLIII.—LADIES' DEPARTMENT. | |
| 1. Bonnet of Canadian straw, best | 4 00 |
| 2d do | 3 00 |
| 2. Braiding, best specimen of | 4 00 |
| 2d do | 3 00 |
| 3. Crochet work, best specimen of | 4 00 |
| 2d do | 3 00 |
| 4. Embroidery in muslin, best specimen of | 4 00 |
| 2d do | 3 00 |
| 5. Embroidery in silk, best specimen | 4 00 |
| 2d do | 3 00 |
| 6. Embroidery in worsted, best specimen of | 4 00 |
| 2d do | 3 00 |
| 7. Gloves, best three pairs of | 3 00 |
| 2d do | 2 00 |
| 8. Guipure work, best specimen of | 4 00 |
| 2d do | 3 00 |
| 9. Hat of Canadian straw, best | 4 00 |
| 2d do | 3 00 |
| 10. Knitting, best specimen of fancy | 4 00 |
| 2d do | 3 00 |
| 11. Lace work, best specimen of | 4 00 |
| 2d do | 3 00 |
| 12. Mittens, best 3 pairs of woollen | 3 00 |
| 2d do | 2 00 |
| 13. Needle work, best specimen of ornamental | 5 00 |
| 2d do | 3 00 |
| 14. Netting, best specimen of fancy | 4 00 |
| 2d do | 3 00 |
| 15. Quilts in crochet, best specimen of | 4 00 |
| 2d do | 3 00 |
| 16. Quilts, in knitting, best specimen of | 4 00 |
| 2d do | 3 00 |
| 17. Quilts, in silk, best specimen of | 4 00 |
| 2d do | 3 00 |
| 18. Quilts in piece work, best specimen of | 4 00 |
| 2d do | 3 00 |
| 19. Shirts, best specimen of gentlemen's | 3 00 |
| 2d do | 2 00 |
| 20. Socks, best 3 pairs of woollen | 3 00 |
| 2d do | 2 00 |
| 21. Stockings, best 3 pair of woollen | 3 00 |
| 2d do | 2 00 |
| 22. Tatting, best specimens of | 4 00 |
| 2d do | 3 00 |
| 23. Wax fruit, best specimen of | 6 00 |
| 2d do | 4 00 |
| 24. Wax flowers, best specimen of | 6 00 |
| 2d do | 4 00 |
| 25. Worsted work, best specimen of | 4 00 |
| 2d do | 3 00 |
| 26. Worsted work, [raised] best specimen of | 4 00 |
| 2d do | 3 00 |
| 27. Extra Entries. | |
| CLASS XLIV.—MACHINERY, AND MANUFACTURES IN METALS. | |
| 1. Bedstead, best iron | 5 00 |

| Sect. | | $ c. |
|---|---|---|
| 2. | Coppersmith's work, best specimen of | 5 00 |
| | 2d do | 3 00 |
| 3. | Cut Nails, best 20 lbs. of | 5 00 |
| | 2d do | 3 00 |
| 4. | Fire arms, best collection of | 8 00 |
| | 2d do | 4 00 |
| 5. | Files, best collection of cast steel. | 3 00 |
| | 2d do | 2 00 |
| 6. | Finishing in iron, [vice work] best specimen of | 3 00 |
| | 2d do | 2 00 |
| 7. | Gas Fittings, best collection of... | 8 00 |
| | 2d do | 5 00 |
| 8. | Horse shoes, best set of | 3 00 |
| | 2d do | 2 00 |
| 9. | Iron fencing and gate, best ornamental | 8 00 |
| | 2d do | 4 00 |
| 10. | Iron work from the hammer, best ornamental | 5 00 |
| | 2d do | 3 00 |
| 11. | Iron work, cast, best ornamental. | 4 00 |
| | 2d do | 2 00 |
| 12. | Iron fire-proof safe, best [price considered] | 5 00 |
| | 2d do | 3 00 |
| 13. | Iron fire-proof vault door, best [price considered] | 5 00 |
| | 2d do | 3 00 |
| 14. | Locksmith's work, best specimen of | 6 00 |
| | 2d do | 3 00 |
| | *Machinery and Models thereof.* | |
| 15. | Castings for general machinery, best specimen of Iron | 6 00 |
| 16. | Cast wheel spur or bevel, best [not less than 5 lbs. weight].. | 4 00 |
| 17. | Fire engine, best | 15 00 |
| 18. | Engine, [general millwright's work or machinery], best model in metal of | 8 00 |
| | 2d do | 5 00 |
| 19. | Steam engine, 4 to 6 horse power, [open to foreign competition] best portable | 3 00 |
| 20. | Steam engine in operation on the ground, best | 40 00 |
| 21. | Valves and gearing for working steam expansively, either in model or otherwise, [principle of working to be the point of competition] best specimen of. | 12 00 |
| 22. | Malleable iron from the ore, best specimen of | 6 00 |
| 23. | do. from scrap iron, best specimen of | 6 00 |
| 24. | Plumber's work, best specimen of | 6 00 |
| | 2d do | 3 00 |
| 25. | Pump, best metal | 4 00 |
| | 2d do | 2 00 |

| Sect. | | $ c. |
|---|---|---|
| | *Railway Casting, &c.* | |
| 26. | Car track worked to a scale, best model of a | 6 00 |
| 27. | Car coupler, best self acting | 12 00 |
| | 2d do | 8 00 |
| 28. | Cast jaws and boxes for cars, best two | 3 00 |
| 29. | Composition boxes for cars, best two | 3 00 |
| 30. | Car castings, best and largest assortment of | 10 00 |
| 31. | Locomotive truck wheels, best [accompained with specimens of the metal chilled and showing the fracture] | 6 00 |
| 32. | Passenger car wheels, best do. do. | 6 00 |
| 33. | Refrigerator, best, [price consid'd] | 4 00 |
| | 2d do | 2 00 |
| 34. | Scales, best platform | 4 00 |
| | 2d do | 3 00 |
| 35. | Scales, best balance | 3 00 |
| | 2d do | 2 00 |
| 36. | Hall stove, best | 4 00 |
| | 2d do | 2 00 |
| 37. | Parlour stove, best | 4 00 |
| | 2d do | 2 00 |
| 38. | Cooking stove with furniture, best | 5 00 |
| | 2d do | 3 00 |
| 39. | Cooking stove for coal, best | 5 00 |
| | 2d do | 3 00 |
| 40. | Parlour grate, best | 5 00 |
| | 2d do | 3 00 |
| 41. | Kitchen range, best | 6 00 |
| | 2d do | 3 00 |
| 42. | Street hydrant, best model of a | 4 00 |
| 43. | Tinsmith's work, best specimen of | 5 00 |
| | 2d do | 3 00 |
| | *Tools.* | |
| 44. | Augers, from ½ to 2 inches, best. | 3 00 |
| 45. | Auger, best earth | 3 00 |
| 46. | Axes, best six narrow | 4 00 |
| | 2d do | 3 00 |
| 47. | Brace bits, best set of | 4 00 |
| 48. | Bench planes, best set of | 4 00 |
| 49. | Blacksmith's bellows, best | 4 00 |
| 50. | Cooper's tools, best set of | 4 00 |
| 51. | Edge tools, best assortment of... | 20 00 |
| 52. | Hammers, best collection of | 4 00 |
| 53. | Moulding planes and plows, best collection | 4 00 |
| 54. | Weavers reeds, best | 2 00 |
| | 2d do | 1 00 |
| 55. | Turning in iron, best specimen of. | 4 00 |
| | 2d do | 3 00 |
| 56. | Wire work, best collection of specimens of | 6 00 |
| | 2d do | 4 00 |
| 57. | Wire ropes, best specimens of... | 4 00 |
| 58. | Pressed nails, best 20 lbs of | 5 00 |
| | 2d do | 3 00 |
| 59. | Screws and bolts, best assortment of | 6 00 |
| | 2d do | 4 00 |

| *Sect.* | $ c. |
|---|---|
| 60. Turning lathe, best | 8 00 |
| 2d do | 5 00 |
| 61. Extra entries. | |

CLASS XLV.—MISCELLANEOUS.

| | |
|---|---|
| 1. Brushes, best assortment of | 4 00 |
| 2d do | 2 00 |
| 2. Combs, best assortment of | 4 00 |
| 2d do | 2 00 |
| 3. Dentistry, best specimen of | 6 00 |
| 2d do | 4 00 |
| 4. Goldsmith's work, best specimen | 6 00 |
| 2d do | 4 00 |
| 5. Mathematical, Philosophical and Surveyor's instruments, best collection of | 8 00 |
| 6. Painting, best specimen of Banner | 6 00 |
| 2d do | 4 00 |
| 7. Painting, best specimen of Heraldic | 6 00 |
| 2d do | 4 00 |
| 8. Painting, best specimen of decorative house | 6 00 |
| 2d do | 4 00 |
| 9. Painting, imitation of wood and marble, best specimen of | 6 00 |
| 2d do | 4 00 |
| 10. Picture frame, best gilt | 6 00 |
| 2d do | 4 00 |
| 11. Picture frame, best veneered | 6 00 |
| 2d do | 4 00 |
| 12. Silversmith's work, best specimen | 6 00 |
| 2d do | 4 00 |
| 13. Stuffed birds, best collection of | 6 00 |
| 2d do | 4 00 |
| 14. Varnishes, Canadian made, best specimen of | 4 00 |
| 2d do | 3 00 |
| 15. Vessel, steam or sailing, best model of a | 5 00 |
| 2d do | 3 00 |
| 16. Extra entries. | |

CLASS XLVI.—MUSICAL INSTRUMENTS.

| | |
|---|---|
| 1. Harmonium, best | 10 00 |
| 2d do | 6 00 |
| 2. Melodeon, best | 6 00 |
| 2d do | 4 00 |
| 3. Piano, best | 15 00 |
| 2d do | 10 00 |
| 4. Violin, best | 3 00 |
| 2d do | 2 00 |
| 5. Extra entries. | |

CLASS XLVII.—POTTERY, BUILDING STONES, &C.

| | |
|---|---|
| 1. Building and flagging stones, best collection of Canadian | 20 00 |
| 2. Draining tiles and pipes, best specimens of different sized | 8 00 |
| 2d do | 5 00 |
| 3. Filterer, best, water | 3 00 |
| 2d do | 2 00 |
| 4. Pottery, best specimen of | 4 00 |
| 2d do | 3 00 |
| 5. Pottery, best assortment of | 8 00 |
| 6. Extra entries. | |

CLASS XLVIII.—PAPER, PRINTING, BOOKBINDING &C., &C.

| *Sect.* | $ c. |
|---|---|
| 1. Book-binding, blank book, best specimen of | 5 00 |
| 2d do | 3 00 |
| 2. Bookbinding, letter press, best specimen of ornamental | 5 00 |
| 2d do | 3 00 |
| 3. Cartridge paper, best specimen of | 2 00 |
| 4. Ink, best specimen of printing | 2 00 |
| 5. Ink, best specimen of writing | 2 00 |
| 6. Letter-press printing, best specimen of plain | 5 00 |
| 2d do | 3 00 |
| 7. Letter press-printing, best ornamental | 5 00 |
| 2d do | 3 00 |
| 8. Printing paper, best ream of | 5 00 |
| 2d do | 3 00 |
| 9. Paper hangings, grounded, best dozen rolls (on Canadian paper) | 6 00 |
| 10. Paper hangings, self grounded, best dozen rolls, (on Canadian paper) | 4 00 |
| 11. Type, best specimen of printing | 6 00 |
| 12. Writing paper, best ream of | 5 00 |
| 2d do | 3 00 |
| 13. Wrapping paper, best and cheapest ream of | 4 00 |
| 2d do | 3 00 |
| 14. Wrapping paper, best specimen of stout | 3 00 |
| 2d do | 2 00 |
| 15. Wrapping paper, best specimen of fine | 3 00 |
| 2d do | 2 00 |
| 16. Extra entries. | |

CLASS XLIX.—WOOLLEN, FLAX, AND COTTON GOODS.

| | |
|---|---|
| 1. Bags, manufactured from flax the growth of Canada, best 12 linen | 5 00 |
| 2d do | 3 00 |
| 2. Bags, best 12 cotton | 4 00 |
| 2d do | 2 00 |
| 3. Blankets, best pair of woollen | 8 00 |
| 2d do | 6 00 |
| 4. Carpet, 12 yards, best piece of woollen | 8 00 |
| 2d do | 6 00 |
| 5. Carpet, 12 yards, best piece of woollen stair | 6 00 |
| 6. Cloth, 12 yards, best piece of fulled | 6 00 |
| 2d do | 4 00 |
| 7. Cloth, Canadian wool, best piece of broad | 8 00 |
| 2d do | 5 00 |
| 8. Counterpanes, best two | 5 00 |
| 2d do | 3 00 |
| 9. Cordage, 28 lbs best flax or hemp | 6 00 |
| 2d do | 4 00 |
| 10. Drawers, factory made, best pair of woollen | 4 00 |
| 2d do | 3 00 |

| Sect. | $ c. |
|---|---|
| 11. Flannel, factory made, best 12 yards | 6 00 |
| 2d do | 4 00 |
| 12. Flannel, not factory made, best piece of (12 yards) | 5 00 |
| 2d do | 3 00 |
| 13. Horse blankets, best 2 pairs of | 5 00 |
| 2d do | 3 00 |
| 14. Horse clothing, best 12 yards of Kersey for | 6 00 |
| 2d do | 4 00 |
| 15. Horse collars, best 12 yards of check for | 5 00 |
| 2d do | 3 00 |
| 16. Linen goods, best piece of | 5 00 |
| 2d do | 3 00 |
| 17. Oil cloth, best 12 yards of | 4 00 |
| 2d do | 3 00 |
| 18. Satinet, best 12 yards of | 6 00 |
| 2d do | 4 00 |
| 19. Shawls, best 3 | 5 00 |
| 2d do | 3 00 |
| 20. Shirts, factory made, best six woollen | 5 00 |
| 2d do | 3 00 |
| 21. Stockings, factory made, best 3 pairs of knitted woollen | 4 00 |
| 22. Socks, factory made, best 3 pairs of knitted woollen | 2 00 |
| 23. Stockings, factory made, best 3 pairs of mixed woollen and cotton | 4 00 |
| 24. Socks, factory made, best 3 pairs of mixed woollen and cotton | 2 00 |
| 25. Tweed, best 12 yards of winter | 4 00 |
| 2d do | 4 00 |
| 26. Twines, linen and cotton, best samples of | 3 00 |
| 27. Minsey, best 12 yards of checked | 5 00 |
| 2d do | 3 00 |
| 28. Woollen yarn, white, best 1 pound | 2 00 |
| 29. Woollen yarn, dyed, do. do. | 2 00 |
| 30. Extra Entries. | |

CLASS L.—FOREIGN MANUFACTURES.

Foreign articles will be admitted for Exhibition only; but certificates will be awarded to any articles of worth or peculiar merit.

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ABSTRACT OF THE REPORT OF THE COMMISSIONER OF CROWN LANDS.—In Lower Canada, in 1858, there were sold 49,143 acres of Crown Lands for $22,249. Of Clergy lands 4,116 acres were sold for $3,809. The net revenue from the Crown Domain was $5,663. In Upper Canada there have been sold, of Crown Lands, 121,603 acres for $138,693, of Clergy Lands 2,581 acres, for $58,762, of Grammar School land, 5,644 acres for $11,469, of Common School lands 3,571 acres for $9,930. In Upper Canada there have been granted gratuitously 55,700 acres; in Lower Canada 1,100. The amount of revenue accruing from ground rents, timber dues and slides, (all Canada) was $232,642. A mining license on the level of Lake Superior was taken at $100. The condition of the settlers on the free grants in Upper Canada is prosperous. The whale fisheries of the Gulf have been very productive; the cod fishery moderately and steadily successful; the seal catch defective; the porpoise fishery fair; the mackrel and herring fishery less productive than in several previous seasons. The Ordnance Lands transferred to the Province have an area of 90,000 acres. Lands have been ordered to be surveyed (and sold at public competition) at Amherstburg, Chatham, Lyons Creek, Chippewa, Queenston Heights, Niagara Town, Pelham Farm, Shorthills, Burlington Heights, Prescott and Cornwall (all in Canada West). Also at Three Rivers, Laprairie, St. John's, South River, Chambly, Chateauguay, and Coteau du Lac, (in Canada East.) Water powers are to be opened up on the Rideau Canal. The revenue from this source has been $15,127, and the expenditure $310, exclusive of a refund to the War Department for arrears erroneously collected for that Department in 1857 of $7,362. The totals at the end of the work shew:

| | |
|---|---|
| Total Receipts, considered as Revenue, 1858 | $376,599 00 |
| Total disbursement, do | 253,159 00 |
| Excess of receipts | $123,440 00 |

COLLECTIONS, 1858.

| | |
|---|---|
| Clergy and School Lands | $271,293 00 |
| Total Collections | 618,455 00 |

MILD AND ASTRINGENT DRINK FOR A HORSE.—Take, Peruvian bark, in powder, one ounce; gentian root, in powder, half an ounce; nitre, one ounce; spirit of vitriol, half a drachm. To be given in a quart of warm ale, every morning, fasting, for three or four times, or longer, if necessary.

THE

# Canadian Agriculturist,

AND

## JOURNAL OF THE BOARD OF AGRICULTURE

OF UPPER CANADA.

VOL. XI. TORONTO, JULY, 1859. No. 7.

## HARVEST WORK.

We have nearly approached that interesting and important season of the Agricultural year—the grain harvest,—round which so many pleasing and poetical associations combine, and in which, as the realization of the husbandman's labors, the hopes of all classes of the community for the restoration of the prosperity of the Province are mainly based. A few practical remarks in relation to this department of Agricultural labour, will not be considered as inopportune.

First, as to the proper time for cutting grain. In general farmers allow their grain to get too ripe before they begin their harvest operations; and the loss from this practice is, when all things are duly considered, much greater than most people imagine. It has been ascertained by the most careful experiments made in the field and in the laboratory, that wheat, for instance, yields the largest amount of the best quality of flour, when it is cut a few days before it is fully ripe; and the reason assigned is that the grain in ripening loses a certain amount of starch and sugar, which is converted into woody fibre, a substance comparatively innutritious. It has long been known to practical men that the grain when fully ripe is thicker in the bran and has a coarser surface or cuticle than when cut in a somewhat greenish state. Wheat, therefore, when dead ripe contains less flour and more bran, and the straw for the same reason is less nutritious as fodder. In this hot and forcing climate, where it is almost impossible to overtake harvest work when it is not commenced betimes, and much of the best grain is lost by shelling out in the field, it is a matter of great practical importance to determine the proper time for commencing harvest operations. If wheat be intended for seed, then the grain should be allowed to ripen fully before cutting, but for converting into flour, it is in the best condition for reaping as soon as the berries have fairly got out of the milky state and have attained to a moderate state of hardness, and the straw has assumed a yellowish colour. If wheat, however, be cut when too green, the grain will shrivel in harvesting, and the sample will be of less commercial value. On an extensive farm where several varieties of wheat are usually cultivated, and soils differ, it will seldom if ever happen that the whole will ripen precisely at the same time. By beginning, therefore, to cut the forwardest before it is fully ripe, with the present improved

appliances for facilitating harvest operations, the whole may, in general, be completed within the desired period.

The above observations more or less apply to the other cereals of the farm.—Barley and oats, for instance, are frequently allowed to stand so long before mowing that a large quantity of the heaviest grain is knocked out in the field, often to the amount sufficient for seeding the same, and sometimes a great deal more. It is, however, not economical to cut either barley or oats before the grain has fully advanced beyond the milky state, and has become tolerably plump, especially when required for seed; but if over ripeness is allowed to take place, not only is much of the best grain lost in the field, but the straw becomes of little value as fodder for cattle.

In the present season we have observed in many fields, owing to the late severe frosts, and other causes, that the growth of the grain is very unequal, which will doubtless be the case with its ripening. The best way will be to cut the whole as soon as the earlier portions become fully ripe, and not wait till the later grain attains that state; a proceeding that would be sure to involve serious loss. To get a field of grain to grow and ripen uniformly, is one of the principal achievements of improved modern agriculture, and an essential condition to a heavy crop and superior quality.

The operations of cutting, binding, and shocking, are frequently performed in a careless and slovenly manner. Formerly, when our agriculture was in a cruder state and the price of grain very low, the manner of doing these things was not of so much consequence. But in our present altered circumstances, when our fields in the older settlements are getting clear of stumps and otherwise improved, with a constant demand for produce at enhanced rates, the operations of harvesting, as well as those of general tillage, should receive more attention to their various details, and as a whole have a higher finish. With our much improved reapers, rakes, &c., this can readily be done both expeditiously and profitably.

Farmers would frequently find it profitable to pay stricter attention to the binding and shocking of wheat, and indeed of other kinds of grain, than is commonly done. Much inconvenience and loss would by this means be obviated, and the work would have a more agreeable finish to the eye. Sheaves of course, ought to be bound so as to bear the necessary after-handling without coming undone; an effect which occasions both loss and inconvenience. When grain is cut comparatively green, and especially in showery seasons, sheaves should invariably be made small and not too tightly bound; and in such case more than ordinary attention should be paid to the shocking. The old country practice of "capping" the shock with two or three inverted sheaves might, in "catching" weather, be advantageously adopted with us, and much sprouted grain be thereby prevented. In the wet harvest of—if we mistake not—1855, we saw a number of harvest fields in the western parts of the Province, in a state of comparative security, by strict attention to good shocking and careful capping. But whatever precautionary measures may be adopted, after a succession of heavy rains, every shock should be examined the first fine day, and if need be, taken apart and thoroughly exposed to the action of wind and sun. In such seasons grain should be put loosely into the mow, and what would be better still, make it into small ricks in the open air. Much grain is absolutely spoiled by being put into barns in a damp state, whereas had it been put into ricks, the dry winds and first frosts would bring it into excellent condition for threshing. These few hints will suggest to the minds of our readers several matters of detail, which, in the aggregate are of much importance. And after using our best means, let us humbly trust that a beneficent Providence will "crown the year with His goodness," and peace and plenty dwell in the land.

## IMPORTANCE OF THOROUGH TILLAGE.

One of the greatest and most common mistakes to which farmers are liable is the getting of more land under tillage than they have either the skill or capital to manage in the most profitable way. This is a mistake common to the cultivators of the soil all over the world. In some of the more advanced countries of Europe may sometimes be found a sufficient amount of enterprise and capital among individuals to manage economically and profitably large breadths of land; but even there, as a general thing, it will be found that farmers have quite as much land as they have the means of turning to a profitable account. The truth is, that the thorough development of the soil, in which consists the perfection of agriculture, involves an industrial pursuit of the highest order, necessarily requiring a large amount of capital, skill, and persevering industry. In this new western world these remarks are of peculiar significancy, as the general tendency among farmers is not so much to farm well, as to farm extensively. It is true that when a man has to convert the wild forest into a farm, the operations cannot be of a very refined character, and the condition of the land for several years to come will necessarily be rough and unfinished. But in older settlements it would be better for farmers to think more of improved culture, and less of mere territorial possession. The practice which so extensively obtains of estimating the wheat crop of a farm by the number of acres under crop, rather than by the probable yield per acre, is an illustration of the principle which we are now animadverting upon; and which, in order to arrive at a practical system of good husbandry, must be kept within proper bounds. It is imperfect, slovenly cultivation, the neglect of manuring, of selecting pure seed, and judiciously changing the succession of crops, rather than any peculiarities either in the soil or climate, that render the crops of this North American continent so frequently fickle and diminutive. Better, far better leave a larger proportion of a farm in the state of pristine nature, and cultivate a lesser portion in a thorough and liberal manner. In this way the current expenses of a farm might often be even diminished, while its produce would sure to be increased. Upon this principle the agricultural wealth of Canada admits of a large augmentation. The following observations of Lord Bacon, addressed to a Prime Minister of England, we commend to the best attention of our readers:—"Of all sorts of thrift for the public good, I would, above all others, commend to your care the encouragement to be given to husbandry, and the improving of land for tillage. There is no such usury as this. The king cannot enlarge the bounds of these islands which make up his empire, the ocean being the unremovable wall which encloseth them; but he may enlarge and multiply the revenue thereof by this honest and harmless way of good husbandry."

## MANAGEMENT OF ROOT CROPS.

As the Hay crop must necessarily be short in most parts of the Province, it behoves the farmer to extend the most liberal treatment to his roots, as the only practicable means now at his command, of meeting the deficiency. It is needless to insist on the necessity of supplying cattle, especially during our long and often severe winters, with a sufficient amount of nutritious food, as every one knows that such care and treatment are essential to success. Superior animals of the improved breeds will very soon deteriorate, unless regularly supplied with the necessary quantity of wholesome fodder. And it has been found from

experience, that mixed cattle-food, such as consists of hay, straw, and the various kinds of roots, is much more economical and nutritious than any of the articles used separately. Hence the importance and reasonableness of drawing the attention of the farmer to the subject.

We should not greatly err, perhaps, if we were to say that the ordinary weight of roots per acre in this country, might be nearly or quite doubled by adopting a more thorough and liberal system of cultivation, which would by no means involve a like proportionate outlay. One acre deeply ploughed and well manured, carefully sown in drills, with proper subsequent cultivation during the early growth of the crop, will often produce as much as two or three acres treated in a slovenly and unskilful manner. It matters little what kind of root crop is cultivated, whether potatoes, turnips, cabbage, mangolds, carrots, &c., for the above observations, apply almost equally to them all.

At the present time, we learn—from the information that has reached us from different parts of the Province—that most of these kinds of crops are looking well, with the exception of early potatoes, which were in many places cut down by the severe frosts in the early part of June. What now remains to be done, is, to set out the plants at such distances in the rows as to allow sufficient room to grow, and for air and light freely to enter. Turnips, mangolds, &c., in a crowded state, never attain half size and feeding qualities; room, air and light, are as necessary to the healthy growth and maturity of vegetables as to animals; a truth very freqently lost sight of in practice. Next in importance is the frequent stirring of the soil, especially during the earlier periods of growth, by which weeds are not only exterminated, but the ground is brought into the most favorable condition, mechanically and chemically, for pushing on the crop. The frequent use of the horse hoe among drill crops, particularly in hot weather and during the periods of drought, is attended by the most beneficial effects. The more the surface is stirred in hot weather, the finer and deeper becomes the tilth, and the soil is thereby enabled to absorb a much larger amount of moisture from the atmosphere, and many important chemical changes are produced.—Among the best farmers in Britain, even wheat and other cereals are subjected to one or two hoeings either by hand or machines during the dry weather of spring and early summer; and the results are most satisfactory and profitable. We say then to our readers, spare no pains to thin out your plants to proper distances, and be liberal with the use of the horse-hoe, not only for the purpose of destroying weeds, but especially for deeply pulverizing the soil.

## THE CROPS.

Of late we have experienced extremely sudden changes of temperature, with occasinal rain. The weather, on the whole, has been cold,—especially during the night,—the thermometer in several instances falling to within a few degrees of the freezing point. The ground, although moist, is not as yet sufficiently heated to push vegetation forward vigorously, and up to the present (July 8th) there are no symptoms of any decided change.

The frosts in the beginning of June destroyed the early wheat in several localities in the Western part of the Province, as we learn was the case in the States of Michigan, Wisconsin, Illinois, Ohio, &c.,—the injury, however, was not so extensive or severe as was at first anticipated. Spring grain is generally promising, and suffered much less. Spring wheat, which is extensively cultivated, has a healthy appearance, and will probably yield well, if it should escape the midge, which is doing considerable mischief in different localities

among winter wheat, although, we trust, much less destructive than last year. Of rust, we hear but little or nothing. Much will of course depend upon the state of the weather for the next few weeks; and the country will await the result with more than ordinary anxiety. We fear, from comparing the different accounts, both public and private, which have reached us, that the probability is, that Canada will not reap an average crop of wheat; we hope, however, from present appearances, that it will not fall much below that point. Hay, in most sections of the Upper Province, will be short; but the deficiency will be partially met by turnips, mangels, carrots, &c., which promise well. From Europe the accounts of the grain crops are promising, and notwithstanding the war, prices were at last accounts receding. We append some remarks from an esteemed correspondent near Cobourg, under date of June 30th:—

"The wheat fly has been very busy in great numbers in our fall wheat, for about a month; they seem to be as numerous this year as ever. The frost did no harm to the grain crops around here, as far as I have seen, but injured the potatoes and corn; but they are fast recovering under the influences of the fine growing weather we have just now. Hay will be a very light crop—old meadow especially so. Spring wheat looks uncommonly well at present, and I hope it is far enough back to escape the dreaded fly. Should nothing unforeseen occur, our spring wheat crop will be abundant. The same may be said of Oats and Peas. Barley came away in most cases rather thin; but otherwise it looks well. Small seeds seem in most cases to do well this season. I have my mangel-wurtzels already thinned, and my turnips and carrots are just about ready for thinning. I trust we will have a good crop of roots to make up in some measure for our deficient hay crop."

## THE PROVINCIAL EXHIBITION.

It will be seen from the President's Circular, which appears in the present number, that the Local Committee at Kingston are using their utmost exertions to provide accomodation, of an ample and superior character, at the approaching exhibition; and they have consequently a just right to appeal to the general public to aid them in this great Provincial work, by sending animals, grains, manufacturing, mechanical and artistical productions, as *material* for the show. As the exhibition is equally open to the whole of Canada, and Kingston being conveniently situated in regard to the eastern section, we shall expect to see many visitors and competitors from the Lower Province, and we hereby extend to them a cordial and respectful invitation. It would be most desirable that the Kingston gathering should be a pretty full exposition of the agricultural, horticultural, mechanical and artistical skill of *United Canada*, and we see nothing to prevent it. Every facility will also be afforded to our friends and neighbors in the great adjoining Republic, to come over and exhibit their various and most approved productions; so that notwithstanding the hard times, the Kingston exhibition, it may be fairly anticipated, will equal if not surpass, any of its predecessors. The buildings, stables, pens, &c., are both extensive, convenient, and permanent; and from the experience we have had of the Local Board of Management, we have every confidence that the whole preparations will be suitable and satisfactory; and it now only remains for the enterprising portion of this great Province, to say whether our next Provincial Show shall eclipse all that have preceded it. This can be done by Societies and individuals taking up the matter in time, and in an earnest, patriotic and practical spirit.

The Premiums we see, amount to nearly TWELVE THOUSAND DOLLARS !— The prize list appeared in our last number, and is being sent to Agricultural Societies, Mechanics' Institutes, &c., throughout the Province. Copies can always be obtained by addressing the Secretary of the Board in Toronto.

Complaints have hitherto been made that articles not manufactured in the Province have sometimes been entered by mistake, as home production, contrary to the seventh printed regulation. Every exertion will, for the future be made to carry out this rule in its integrity, as no article can be thereby allowed to compete in our own classes, *unless made in the Province.*

Foreign articles are invited for exhibition, and they will receive diplomas, or special prizes, according to their respective merits.

# Correspondence.

## PREMIUM AND SEED WHEAT.

NEWCASTLE, 6th June, 1859.

*To the Board of Agriculture, Upper Canada.*

GENTLEMEN,—Permit me through the *Agriculturist,* to address you upon a subject which I deem of vital importance to the Institution, as upon its management depends its success.

It is a matter of the gravest consideration to know whether the efforts of societies and individuals in promoting competition by the means of premiums, are proving beneficial or not for the purposes intended.

Close observation compels me to say that this is not always the case, and in that of Seed Fall Wheat most particularly so. When I say this I refer directly to the present management of this article by the Association.

Fall Wheat, I emphatically term the very marrow of the country, from and through it this colony as an agricultural one, has obtained the high celebrity which she now holds; the expositions of 1851 and 1855, can fully testify this. If we wish to retain this position, it behoves us one and all to be the more careful in properly nurturing it. Agriculturists of high reputation and gentlemen of philanthropic spirit have not lost sight of this particular.

When the Provincial Association was first formed, the article, Seed Wheat, stood as it now does, the most prominently forward. The Canada Company caught up this spirit, and their yearly munificent gift of $100 clearly shews it; they knew that in their extensive settlements of the west, by the introduction of the best and most favourable kinds of seed, they were not only conferring a boon upon the farmers, but actually raising the value of their lands from 50 to 100 per cent thereby. The western portion of the country has gained the reputation of producing the best wheat, and consequently first class emigrants settled in these particular localities.

The result of high premiums brought about great competition. Farmers strained every nerve; the greatest skill was brought to bear to produce the best samples, and to such a high state of perfection was this attained, that the judges had the greatest difficulty in deciding which was most worthy, but to get over this difficulty the Association deemed it the most just way to measure and weigh the samples, the heaviest of course taking the first prize. In introducing this system they did not foresee the present results. It is against the system of weighing that I wish to draw your attention; an onlooker has sometimes better opportunities of observing than the officers of an institution, especially at a time when they are most busy, during the days of the exhibition. A superficial observer would consider this system of weighing the most just, but upon close inspection (and I have done so for the last 3 years) the system now employed will not carry out the original intention, the great aim of the Association, viz., to procure the very best seed. Some may incline to differ with me in this, but when I say that close observation and practical results are my guides, I can speak confidently, pointedly. I cannot say what instructions the judges of this article may have from the Association, but I have observed the system they adopt. Measure in hand, they proceed from lot to lot, taking down the weight of each one, and when gone through with they sum up

and those samples which prove the heaviest carry off the prize; the kind of wheat, the beauty of the sample, its adaptedness for seed, its producing qualities for flour, and many other things which I might mention, are never taken into consideration. Weight is their guide, and that alone they go by. Some exhibiters more knowing than others (having gone through the fire) have turned their attention to produce this weight. The system employed (and I have it from the gentleman who was the successful competitor for 1856 and 1857) is to cut the wheat when it is just out of the milk, sufficiently so not to shrink. It is now well known that wheat in this state will weigh much heavier than if allowed to fully ripen, and what is the consequence? This wheat when sown again will not produce sufficiently to pay the expenses, for it has not arrived at its maturity, which should and must be before it answers the purpose designed by nature—seed. This is the case in all other plants and herbs, that they must be thoroughly ripe before they are fitted for seed, and how is, or how can whea tbe an exception to this law of nature—the thing is impossible.

Another thing which is closely allied to this, is the kind of wheat. The great object of the farmer is to get seed which will yield the greatest quantity to the acre, and of such a kind that will command the highest price.

There are but two kinds of Fall Wheat which come in direct competition at the exhibition, the *Sole's White*, and the *Blue Stem;* the latter kind has taken the prize for the last three years, on the grounds of weighing heavier; it has certainly done so, and under the system which I have mentioned, *cutting it green;* but will it weigh as heavy as the other kind if allowed to stand until fully ripe, is a question in my mind; but whether or not is a matter of minor importance, as all wheat is sold by weight, not by measure, but allowing it this disadvantage, what others does it possess? Which of the two kinds yield the best. If the Sole's will produce to the acre upon the same field from one-eighth to one-fifth more, which of the two commands the highest price? The Sole's. Why? Because the miller can manufacture from 4 to 5 lbs more flour out of the bushel of 60 lbs; and which manufactures the best flour? The Soles: it is this kind that has raised the standard of the Canadian flour so high, both in the Home and American market. It was from this kind that the barrel of flour took the prize at the Exhibition in England in 1851; it was from this kind that the prizes have been awarded in the New York State Fair, Lower Canada, and our own Association, whenever it has competed, and that is for the past 10 years, at least. I have pointed out a system that if allowed to go on will prove utterly ruinous to the Association and to the country. To the Association, as there is a very great deal of dissatisfaction, and consequently a falling off of competition and membership. A number of competitors for the Canada Company's prize last year declared if the present system was still pursued they would not compete again, for they considered justice was not done them, and more especially those whose wheat was considered by onlookers and able judges far superior to that which took the prize; samples of which were taken by gentlemen both to the New York State Fair, and to Mark Lane, London, and declared to be beyond anything they had ever seen in the country. If every one were to adopt this system of cutting their wheat in a green state, we would shortly have nothing fit for seed.

I have stated what has come under my observation; hundreds of others know the same facts, and it is for the members of your Board to investigate this matter, and apply it as you deem best, it is quite easy to tell ripe grain and green. Take a berry of each and cut them through, the ripe one will appear as white as chalk, and shewing the thickness of the skin; the other will be all alike, of a blueish cast, and very transparent.

I am, Gentlemen,

Yours truly,

E. A. M'NAUGHTON.

REMARKS.

No doubt but our correspondent's communication will receive that attention by the Board of Agriculture as the important object, which he seeks to secure, demands. We were not aware that the Judges of wheat at our Provincial Shows make weight *alone*, the condition on which they decide the premiums, and cannot help thinking that our correspondent has some misapprehension on this point. Mr. Widder, as the Chief Commissioner of the Canada Company, has intimated to the Board what he wishes and requires relative to this matter; that the wheat obtaining their munificent premium, should be of pure, uniform quality, and the best adapted, *as seed*, to the climate, soils, and markets of Canada. The Board will doubtless give such definite instructions to the Judges, as will secure these important objects.—[EDITOR.

# Agricultural Intelligence.

## THE TURNIP FLY.

[The following notice of a paper read by Mr. Fisher Hobbs at a recent meeting of the Council of the Royal Agricultural Society of England, will be found to contain matter of interest and utility to many of the readers of this Journal.]

Mr. Fisher Hobbs, in accordance with the arrangement made at the last Council, favored the meeting with the following statement of his practical experience in preventing the ravages of the Turnip-fly:—

Having been requested at the last meeting of the Society to introduce to the notice of the members my experience of, and mode of treatment for preventing the ravages of the Turnip Fly, I readily consented to do so, with, however, the understanding that, what I had to say should be given more in a conversational form than as a paper prepared for the occasion. I was induced the more to respond to this invitation in the hope that it might act as something of an example for other members, and that the Weekly Council Meetings of the Society might become of some interest and service to us all, by affording the time and place for talking over subjects of passing importance to agriculturists generally. In introducing this subject I wish you particularly to understand that I have no new theory to expound, but merely to impress the result of my practice and the policy of carrying out certain principles which have long been known and admitted; but, I fear, not sufficiently observed. My remarks on the cultivation I should here state are intended to apply more to the Swede Turnip than to any other varieties which are generally grown after green crops, but the great work of destruction by the fly is applicable alike to both. As "prevention is better than cure" I shall commence with the preparation of the land, assuming that this has been thoroughly under-drained wherever requisite. 1st. I consider that autumnal cultivation is essentially necessary; first, by broadsharing for the destruction of weeds and insects, as well as for the aëration of the soil. 2d. That deep ploughing should follow, and subsoiling if required, and it is frequently my practice during the early part of winter to carry on to the land intended for a root crop the unfermented manure direct from the yards or sheds, and at once plough it in, and not a particle must be suffered to be seen on the surface; this I believe to be important, for if not attended to the undecayed portion of the manure becomes a receptacle, and subsequently a nursery for insects. 3d. That at the commencement of spring it is most desirable, as soon as the state of the land will permit, to apply the harrows and roll, especially the former. I believe that more good may be done towards the destruction of insects of various kinds at that period than at any other throughout the year. Afterwards scarify, harrow, and roll until the land is in a pulverised state, and for a fortnight or three weeks before the time for drilling let the land remain like a seed-bed, so as to attract moisture, to allow vegetation for the seeds of weeds and for insects to deposit their larvæ; this is frequently termed "purging" the land. I need not refer to the common mode of applying the fermented or partly rotted farm-yard manure for the Turnip crop, except to state that it ought at once to be ploughed in, and the seed deposited immediately. 4th. That at the time of drilling the seed it is best for the land to be ploughed (but some prefer scarifying only) and the seed to be immediately deposited. This is so important that I have frequently known total failures from the neglect of so doing. There is another point which I would strongly recommend, that is, in dry and sunny weather to plough and sow early in the morning and late in the afternoon, but never during the heat of the day. I know an instance where the most signal success has for several years attended this mode of operation, and where the manager has never failed to secure a plant, although he is one of the old school, and still sows the seed broadcast with his own hand. This can be confirmed by several large farmers in the neighbourhood, who, strange to say, notwithstanding the example thus placed before them, continue to incur an amount of loss from having to sow two or three times, simply from the obstinacy and prejudice with which they continue to adhere to the customary working hours for their horses and men. 5th. That at the time of depositing the seed it is my invariable practice to use some description of artificial manure, generally superphosphate of lime, and likewise add about 30 bushels of ashes per acre, made from hedge trimmings,

weeds, &c., collected upon the land at different periods throughout the year. The roller may now be used with great advantage, before, and sometimes after drilling.—In dry weather I strongly recommend the application of the liquid manure drill. 6th. That before or immediately the young plants appear, the horse-hoe should be resorted to for the purpose of destroying the ova or larvæ of the insects to prevent their coming to maturity. When once the plant is well up the roller may sometimes be applied with much benefit as it tends still further to disturb the insect tribe, as well as to retain moisture for the young plant, and to consolidate the farm-yard manure where lately applied. At this period the plant requires frequent watching throughout the day, and if the enemy shows itself in any force set to work as quickly as possible to accomplish its annihilation. Having described to you briefly my mode of prevention, I will now proceed to give you the cure, which is simply by the application of one or more 'top-dressings.' I have tried various experiments, steeping the seed, and top-dressings for upwards of 30 years, but though sometimes successful I could not depend on any of them until I adopted my present system, and I think it is only fair that I should state that I derived the chief features as to the use of this top-dressing from my late bailiff Mr. O. Hawkins, who came to me some nine years since with an especial recommendation on this point; in fact, he himself engaged to secure the Turnip plant from the ravages of the fly, adding that he was willing to give up his situation immediately if he could not do so. I can only add that for eight years, during the whole time he was with me, he fulfilled all he promised in this respect. The following is Mr. Hawkins' recipe for a top-dressing:—1 bushel of white gas-ashes, fresh from the gas-house; 1 bushel of fresh lime from the kiln, 6 lbs. of sulphur, and 10 lbs. of soot, well mixed together and got to as fine a powder as possible, so that it may adhere to the young plant. The above is sufficient for 2 acres when drilled at 27 inches. It should be applied very early in the morning, when the *dew is on the leaf*—a broad-cast machine being the most expeditious mode of distributing it, or it may be sprinkled with the hand carefully over the rows. If the fly continues troublesome the process should be repeated; by this means 200 to 220 acres of Turnips, Swedes, and Rape have been grown on my farms annually, for eight or nine years without a rod of ground losing plants. The above is a strong dressing to be used when the fly is very numerous, and has never failed when applied at night. Numerous experiments have been tried, and amongst them I recommend the following in ordinary cases, and intend to use it during the present season if necessary:—14 lbs. of sulphur, 1 bushel of fresh lime, and 2 bushels of road scrapings per acre, mixed together for a few days before it is used, and applied at night, either by means of a small drill, or strewed along the rows by hand. I have known sulphur mixed with water applied in a liquid state by means of water-carts during the night and the horse-hoe immediately following the water-cart. This has succeeded admirably. In consequence of the dryness of the climate in my neighborhood (the rain-fall being on the average only about 16 inches annually) I usually sow on the flat; but the dressings above-named are equally applicable to crops sown on the ridge. I would strongly impress the necessity of frequently applying the horse-hoe. It is not my intention to enter upon the subject of the history, habits, and transformations of the various insects that infest the Turnip crop, but I would rather refer you to Curtis' excellent treatises on the subject, which appear in our journals. I think that these papers might be re-printed with great advantage in a cheap form in something of the same style of pamphlet as Mr. Miles' Essay on Horse-hoeing. I am quite sure there is no subject of which the farmer has so little scientific knowledge as entomology, nor is there one that has had less attention paid to it by the Society. In offering these rough notes to your notice I am fully aware of the little information I have given, and I wish you to understand that I feel I have only acted up to the principle which I have always endeavored to observe in the course of my agricultural career. I have ever been anxious to impart information as well as to acquire it. I have no secrets to keep, and in my opinion there ought to be none in farming. The system I here recommend is founded upon my own practice and experience, and for many years I have proved and can answer for its efficacy. I am induced from these results to conclude that by care and attention the Turnip plant may be as effectually and as certainly freed from the ravages of the fly as seed Wheat has been for upwards of the last 20 years from smut and other destructive fungi.

## PROVINCIAL EXHIBITION OF 1859.

### CIRCULAR FROM THE PRESIDENT.

*To the President, Directors and Members of the several Agricultural and other Societies and to the Public generally :—*

Ladies and Gentlemen—The time for holding the Annual Provincial Exhibition being fixed for the four last days of September next, in Kingston, it is the duty of the President for the time being to follow the Custom of past years, by urging upon the notice of the community and particularly of those portions engaged in Agricultural and Mechanical pursuits, the propriety of aiding and promoting the objects for which the Provincial Agricultural Association was constituted—the encouragement of Agriculture, Arts, and Manufactures.

From the gradual progress perceptible each succeeding year, in every department of the Annual Exhibition, and the good effect produced from the extensive and interesting displays of the Industry and General Productions of the Province, it cannot fail in inciting us to use our best efforts to maintain the exalted position to which it has attained; and from the valuable assistance which it is expected will be rendered by the members of the Board of Arts and Manufactures at the Exhibition of 1859, in connection with the Board of Agriculture, we have an assurance of a still more interesting Exhibition in the Mechanical and Manufacturing Departments.

To the Agriculturist and Horticulturist no wider field for advantageous observation presents itself than the Provincial Exhibition Ground, stocked as it always is with Pure Bred Animals of every kind, and the choicest productions of the Field, the Garden and Orchard; as well as the many labor saving and useful Implemants now found so necessary for various Agricultural and Horticultural purposes, and so admirably adapted to lessen toil and save expense.

To the Mechanic or Manufacturer, no better opportunity presents itself for the display of his skill, his talent and his enterprise than where honorable competition with his fellow Mechanic and Manufacturer from every section of the Province, is offered to each in his own particular line of business.

To the Artist and Man of Science, the sphere of study is by no means limited. Ample scope will be found for displaying the talents of the former as well as the scientific research of the latter.

To the Ladies, the Annual Exhibition owes much of its interesting features, as the thronging masses desirous of visiting the department under their special care abundantly testify. No failure of an amply display on their part both of the useful and ornamental is anticipated.

To the public generally, the Annual Exhibition presents a scene of deep interest, and well deserves the cordial support of all classes of society; and from the benefits it has produced hitherto, it is hoped that those engaged in its management will receive that encouragement and aid which are necessary to ensure a successful issue, and to make the Exhibition of 1859 what it is intended to be, a fair Exposition of the resources of Canada. As the benefits of membership in the Provincial Agricultural Association are not confined to the Western Section of the Province only, but extend to the United Province, a favorable opportunity is thus presented to our Lower Canadian friends, of which we trust they will avail themselves, by contributing largely from the productions of the Eastern Section of Canada, and thereby greatly increase the general interests of the Exhibition.

In order to ensure the protection of costly articles, and valuable animals, that may be brought to the Exhibition, spacious waterproof buildings, stalls, and pens, are now being erected within the grounds, capable of affording accommodation hitherto unequalled, to all classes of exhibitors.

The steamboats and roalroads will, during the Show week, charge half fare; and the Wharfingers of Kingston, with their usual liberality, will allow all articles and animals intended for Exhibition, to be landed and re-shipped free of charge.

WILLIAM FERGUSON,
*President Prov. Agr'l Association.*

Kingston, 22nd June, 1859.

## PLOWING BY STEAM.

Illinois appears to be taking the lead of all the other States in agricultural progressiveness. A prize of $6,500 has been placed at the disposal of its State Agricultural Society for the best steam plow, and, from a circular sent us, we learn that a company has been formed in the city of Chicago, with a capital of $50,000, for introducing into practical use the traction locomotive rotary tiller of Thomas Kiddy.

This subject is by no means a new one, although but little attention has been given to it until within two or three years past. We will endeavor to present some information showing what has already been done by others, so that the ground may be better understood than it now is.

England has been the experimental farm for steam plowing, efforts having been made twenty-seven years ago to reclaim and cultivate Chat Moss by steam machinery. An engine, stationed at one end of a plot of land, was employed to drag plows through the soil by means of ropes passing over the drum of a windlass. With some modifications of machinery, this system appears to have been the most successful that has yet been attempted. The person who has done most to render plowing by steam, in England, as economical in cultivating land as animal power, is Mr. John Fowler, an agricultural engineer, who has expended no less than $100,000 for this purpose. He employs a portable engine on wheels, stations it at one end or headland of a field; then at the other end he puts up a frame called an anchor, on which there is a drum, and the distance between this anchor and the engine is the length of the furrow to be turned over; and endless wire rope extends from a windlass on the engine around the drum on the anchor frame, and to this rope is attached a frame carrying six plowshares,—the one placed a little behind the other,—and these turn over six furrows at once. The engine winds the wire rope on one end of its windlass while it is given off at the other, and the plows are then dragged forward towards the anchor, and when they arrive at this point they are reversed, the anchor frame moved a little forward at one headland, while the engine moves itself forward for the next six furrows, and the six plows are then dragged back, turning over six other furrows in returning. The engine and anchor frame are thus moved at intervals on the headlands, in parallel lines, but are stationary while the plows are working. This system is very simple, and no power is expended, as in a locomotive steam plow, by dragging the engine through the soft soil. It is stated that the anchor frame can be shifted and the plows reversed at the end, turning nearly as fast as a team of horses can be turned. By the same method of operating the engine and windlass, other implements for cutting up the soil have been tried as substitutes for the plow, such as rotary cultivators, resembling a series of revolving scrapers for plunging into and stirring up the soil. Mr. J. Smith, of Wolston, England, has employed this method for five years with great success, and has found it best to apply it in the fall. It brings all the weeds and sods to the surface, exposes their roots to the frosts of winter, and kills them; and it is recorded that stiff clay soils, by this process of cultivation, have become mellow and easily worked.

Another system of plowing, different in principle, was illustrated on page 401, Vol. VI. of the *Scientific American*, and consisted of a locomotive, and having broad-faced wheels, which moved over the field to be plowed, drawing a transverse frame, in which were a series of revolving plows on an endless chain. As the plows operated at right angles to the forward motion of the wheels, the action of this plow was very defective. Another plow, upon the same principle of operation by a locomotive engine, was illustrated on page 297, Vol. VII., of the *Scientific American*. It carried five rotary cultivators, and its action impressed us favorably, but it has not been able to contend with Fowler's, which has taken nearly all the steam plow prizes offered by the agricultural societies in Great Britain. A locomotive steam plow, with a broad spiral cultivator dragging behind the engine, has also been tried in England, but with no success.

Little has been done in our own country in the way of steam-ploughing in comparison with the efforts made in Great Britain; still, we have made a beginning, and this is cheering.

In 1855, Obed Hussey, of Baltimore, the well-known inventor of the mowing machine constructed a steam plow, and tested it in October, 1856, as described on page 311, Vol. XII., of the *Scientific American;* but since that period we have not heard that it has ever been used, nor the reason why. On the 10th of November, 1858, the steam plow

of Mr. Fawkes was exhibited and tested before the State Agricultural Society of Illinois, and although statements were then made that it had been very successful, it does not appear to have satisfied the farmers of the "Prairie State;" hence the prize we have mentioned, which is once more offered by the State Agricultural Society. Mr. Kiddy's steam plow, to which we have alluded, is a locomotive that carries its own endless railroad to prevent sinking into the soil, and thus it is intended to save the power that would otherwise be expended to drag itself. It is, in principle, similar to that illustrated on page 353, Vol. III., of the *Scientific American*, and which, in England, is called "Boydell's traction system." Its tillers are not common plowshares, but double vertical revolving screw cutters for cutting and stirring up the soil, and they appear well adapted for this purpose. Every American steam plow that has yet been brought before the public embraces the locomotive principle of the engine moving over the entire field, dragging a set of plows, which is quite different in its nature from Fowler's, the one which has been most successful in Europe. The engine used for operating a steam plow should also be capable of being applied to threshing, grinding, and other operations of a farm, as none of our farmers can well afford to keep an engine for ploughing exclusively. In hilly countries the steam plough will never be able to supplant horses; but in such a State as Illinois, where the farms are very large, the soil mellow, and the fields nearly level, and where fuel is abundant, the steam plow appears to be invited to success.—*Scientific American.*

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## THE TASTE OF BUTTER.

The following are passages on this subject extracted from previous volumes of the *Agricultural Gazette*:—

1. I have found chloride of lime very effectual to remove from butter the taste of Turnips, or any other bad flavor. A drachm of it to every expected pound of butter put into the water of the second washing, after it is taken out of the churn, and the butter well but rapidly kneaded in it.

2. Do not feed your animals with Turnips until they have been previously milked, by which means the animal has 12 hours to get rid of the flavor of the vegetable. Good hay must also be given in sufficient quantity. I need not add great cleanliness not only in the cow-house but in the dairy. No stale pieces of Turnip should on any account be allowed to remain in the manger, which should be cleaned out before feeding. If your correspondent does not feed largely, perhaps peeling the Turnips might answer the purpose, for it is principally in the skin that the strong smell resides. I question much if saltpetre answers any purpose in freeing the cream of the strong taste imparted by Turnips.

2. We have obtained answers from Warwickshire, Cheshire, Gloucestershire, and Devonshire. Some of them suppose the annual occurrence of the nuisance to be due to the growth of some ill-tasted weed at that time; others appear to have had no experience of the evil complained of; the only one who speaks positively says:—"The cause of the unpleasant taste in your correspondent 'R.'s' butter is wild Garlic, or what in Devonshire is known by the name of Ramsey [Ramson], which is often found here in rich pastures. The leaf is much like the Lily of the Valley, and bears a white flower. The reason of its not affecting the butter after the middle of June is, that it is then in flower, when the cows will not eat it. The best way is to dig it up early in May, or now, if not covered with Grass." The following is from Cheshire:—"I have not met with any case similar to the one you speak of respecting butter, although I have heard of instances in some parts of North Wales, where the butter is not so good flavoured at certain seasons of the year, and the cause was attributed to ill-flavoured plants making their appearance at those times, more especially the wild Onion. The herbage, certainly, has a great deal to do with the flavour of butter and cheese, and I find that Red Clover even affects it; in this county there is nothing to equal old pastures for the dairy. Perhaps if the farmers in Warwickshire would examine their land carefully, they might be able to discover the real cause." We had cows on grass last year, and their cream and butter had the acrid taste that you complain of. We had about a dessert-spoonful of saltpetre dissolved in water, and put into every gallon of milk before it was churned, and a small bit of common salt was put into the milk-pan when the milk

was brought in from the cows. The cream was put to stand in boiling water for half an hour, and frequently stirred while the water cooled before it was churned. Ultimately we had good butter, but certainly not till after this season of the year had passed. So that probably the improvement was attributable, not to our treatment, but to the natural alteration of the pasture, which is full of buttercups at this season.

4. As soon as the milk is brought into the dairy (warm from the cows), pour into it in the proportion of half a pint of boiling water to a gallon of milk; cover it over with a cloth, four times doubled, for half an hour; then strain and pour into it milk dishes to stand for cream. N. B. I have never known this receipt fail, unless the dairy-maid put a wooden cover over the milk-pail instead of a cloth, which absorbs the steam, and entirely removes any unpleasant taste, even when the cows are fed on yellow turnips and straw, which makes the butter require no coloring of carrot, and have the appearance of summer butter.

5. There is a paragraph in your paper headed "Butter-making," in which the writer condemns the use of turnips for feeding cows, as giving the butter and cream a bad taste, and expresses his surprise that there should not be any method to prevent it. I occupied a farm of 500 acres, and kept a large dairy of cows, and never had the taste of turnips in the butter, by applying hot water and steam, at different times, to the milk and cream, which entirely took away all flavor of the turnip. We generally made from 1d. to 2d. per lb. of our butter more than market price. Should any gentleman wish to know what our process was, I should be most happy to give him any information that he may require. Our system has been carried out for forty years, and has never been known to fail where properly attended to.

6. The popular remedy in these parts is, to put a small quantity of pounded nitre in the pail before going to milk, which answers well enough so far as the milk is concerned; but its influence can hardly be said to extend to the cheese and butter. The writer has heard it stated that nitre would meet the evil in the cheese and butter as well as in the milk, if it were only used in sufficient quantity; but then, many are of opinion that the use of nitre to the extent necessary for effectually correcting the evil in cheese, or in butter when kept for some time, would give to the dairy produce medicinal properties, of a kind not altogether agreeable; be that as it may, the point is an important one, and such as might with very great propriety be brought under the notice of some of the leading chemists of the day. As you expressed a wish to know how the flavor of turnips was got rid of in the butter which I sent you, and which was made from the milk of cows fed, morning and evening, on Swedes, I beg to inform you and your readers that the only precaution adopted is that the cream, before being placed in the churn, should stand in a room with a fire, and raised to the temperature of 65° Fahrenheit. This prevents a tedious operation in churning, and, with ordinary cleanliness in the dairy, butter so made will never taste of turnips. This is the whole mystery of destroying the flavor of turnips in butter; an experience of a dozen years in a large dairy may be relied on.

7. If you collect so many gallons of cream before churning, then put that number of half pints of vinegar into the jar to begin with, and churn when the usual quantity is collected. "Quercus" is the authority for this. He had "it from a friend of his who supplies a large quantity of butter of the best quality to one of the crack shops at the west end."

8. Make a strong solution of nitre, and add a dessert spoonful of it to every two gallons of milk as it is brought in from the cow.

9. The simplest and most convenient preventive against turnipy taint, and one to the efficacy of which I can speak from daily experience, is to let your cows have their feed of turnips immediately after being milked, and at no other time.

10. "S. R. S." asks for the cause of his butter being bad both in texture and taste; cows fed on Mangel Wurzel and Beans, with scrupulous cleanliness in dairy utensils, but cream churned only once a week. My cows were fed last winter on Mangel Wurzel cut into shreds with a (Moody, Frome) turnip-cutter, and mixed with hay and straw chaff; butter made twice a week. The butter was good in flavor, but crumbled. In the spring I was able to add Rape to the above food, the butter immediately changed to a good texture, and improved in flavor; this change I attribute to the oily nature of the plant Rape. I have this winter used oil-cake crushed, giving 2 quarts a day to each cow, 3 perhaps would not be amiss, with Mangel Wurzel, some few Swedes, and a sprinkling at times of Carrots, all cut up, being well cleared from dirt, and mixed with chaff. Butter is good both in texture and flavor, but I think it should be made winter and summer twice a week. I have used beans, but find them neither so good nor so cheap as cake.

THE CROPS.—The reports of the state of the crops in different parts of the country are very varied. While some accounts state the damage done to the wheat by the June frosts to be very great, and we know as a fact that some fields have been considered quite worthless by their owners and have been cut down,—other accounts represent the crops as luxuriant and promising in the highest degree. On the whole we may anticipate that the injury from this cause will not very greatly depreciate the value of the general return. Potatoes are said to be making great headway and other Spring crops have, generally speaking, a promising appearance. Hay will be nearly throughout the country an exceedingly short crop. Farmers will require all the roots and other forage crops which they can yet produce to help their cattle through next winter.

The Toronto *Colonist* is informed by an old and most respectable farmer, that many years ago a frost occurred similar to that of the past month. The wheat crop was then despaired of in many places, and farmers proceeded to cut it down and plough up the ground, as we are aware has been done lately. Others, however, who acted more cautiously, found that although the main stems of the wheat were killed, their place was fully supplied afterwards by the side shoots, which came forward somewhat later, but still in time to save the crop. The nutriment due to the first stem was thrown back to their successors, which "stooled out" healthily in consequence, and more than an average crop was obtained.

DRAINAGE.—The Municipal Council of the Township of Chatham, have set a good example to other localities similarly situated. They have become so well convinced of the importance to the Agricultural interests of the township, and also of the health of the inhabitants, of the general drainage of the land, that they have passed a By-law, rendering it compulsory upon persons occupying property upon the streams or water courses in the township, to keep them free from fallen timber and brushwood or other obstructions, by which the attempts at drainage of other parties might be frustrated.—The By-law also provides for the levying of a rate to pay for the clearance of the streams running through unoccupied lands. In a very level township like Chatham, a measure of this sort, providing for the clearance of the natural ducts for the surplus water, will be of great service.

REMEDY FOR THE WHEAT FLY.—Mr. Peter Travis, of Grimsby, has just informed the writer that in his neighborhood the farmers are busily employed in destroying the Midge by the following effectual process! Take candle-wick, make an inch rope of it, of the length between the furrows of the field, saturate it with Spirits of Turpentine, fasten a half pound weight or thereabouts to the centre—a man at each end drags the rope across the heads of the wheat. As fast as the rope dries saturate a-fresh, it does not want to be too wet; after two or three days go over the field again the reverse way, a gallon will easily do a ten-acre field. The cords once saturated will about go across the field before requiring it again. It kills vast numbers of them. It has been tried here two seasons and found effectual.—*Hamilton Spectator.*

Parties who have tried the above remedy state that it is necessary to be cautious, and not use too much of the turpentine, or the wheat itself will be killed as well as the fly. A slight wetting of the rope is sufficient.

GRUBS IN SHEEP.—A writer in the Michigan *Farmer* says this is a perfect cure for grubs in the head of sheep: "Take one quart of whiskey and two ounces of yellow snuff, mix and warm to blood heat. Let one man hold the sheep and another take a small syringe and discharge about a teaspoonful of the mixture into each nostril. It is a certain cure. My father met with quite a loss in his flock; he tried this remedy, found it satisfactory, and never lost another sheep."

A NEW ENEMY IN THE CORN FIELDS.—The corn fields in some parts of Illinois are being daily damaged by rats. The corn cribs being empty, and very little to be found in the barn yards, the rats have betaken themselves in large bodies to the fields, where they dig below the stalks and eat the kernels, thus ruining large tracts of growing corn. Large numbers have been killed, one farmer having slaughtered 1100, and another 200.

## HOW TO USE A HORSE.

It is not, after all, every one who owns a horse that knows how to use him, whether for his own pleasure or the horse's, which is, in other words, the owner's best advantage. Nor is it very easy to lay down rules how a horse should be used, considering the many different purposes for which horses are kept, the different natures and constitutions of the animals, and the different circumstances of their owners.

Horses may, in general, be divided into two classes—those kept for work, and those kept for pleasure. In the former class may be included farm-horses, stage, coach, and omnibus horses, team-horses, employed in the transportation of goods, and moving heavy and bulky masses, carmen's horses,—and lastly, the road horses of all professional men, who, like lawyers, doctors of medicine, and the like, are compelled to drive or ride many hours *per diem*, regularly, in the performance of their business.

In the latter class may be included race-horses, match-trotters, private gentleman's saddle-horses, carriage-horses, or roadsters, and many other animals belonging to business men, which being employed during half the time or more in actual service, are used during spare hours on the road, for purposes of amusement.

With regard to the first class of these horses, the exigencies of the business to which they are applied are, for the most part, such as to supersede and override all rules. In some cases the natural hours of the day and night have to be reversed, and the animals are called upon to do their work by night, and to rest and feed by day. Under these circumstances, it may be laid down as an immutable law, that at whatever hour the horses are to be worked, they must have full time, beforehand, to digest their food and water; they must be carefully cleaned, and made comfortable; they must have sufficient intervals for halting and baiting on the road, must be cleaned and well fed during the intervals of work, and must have ample time for undisturbed repose. The distance which horses in perfect condition can go upon the road, varies greatly with the powers of the animal, the degree of pains bestowed upon him, the skill of his driver, and the amount of his load, as well as the state of the roads. But it may be taken as a rule, that strong, able horses, of moderate speed, can travel forty miles a day, with a moderate load, without distress, for many days in succession. It may be observed, that it is the better way to start at an easy pace when on a journey, to increase it slightly in the middle of the day, and again to relax it before coming in at night, in order to allow the animals to enter their stables cool, in good order, and ready, after a short rest and cleaning, to feed with an appetite.

It may also be observed, in this point of view, that it is a mistake to fancy that horses are benefitted by being driven or ridden very slowly when they have a long distance to perform. If a horse has to get over forty miles in a day, the roads being good, the temperature of the day pleasant, and the load not excessive, he will do it with more ease and less inconvenience to himself, going at the rate of seven or eight miles the hour, and doing the whole distance in five or six hours, with a single stoppage in the middle of the day, to feed and rest, than if he be kept pottering along at the rate of four or five miles, and be kept out of his stable, hungry and thirsty, and leg-weary to boot, for a longer time.

Farm-horses, whose work is necessarily slow and continuous, lasting ordinarily from sunrise to sunset, with the exception of a mid-day halt for baiting, are under different circumstances. Their work being always slow, and rarely, if ever, severe, at the moment, or toilsome, except from its long duration, they need not be subject to the same condition as fast-working horses, of being fed long before they are put to work, and allowed to evacuate their bowels thoroughly before being harnessed. They may, therefore, be fed and watered at the last moment, and put to slow work immediately, and will rarely take harm from travelling on full stomachs. In the same manner, when they are loosed at noon-day, being rarely overheated, after a slight rest and a slighter rubbing down—which, by the way, they rarely receive—they may take their mid-day feed without delay, and without fear of evil consequences. In the like manner may be treated carmen's horses, and team horses, the labor of which is heavy and continuous rather than rapid. All horses, however, whatever the work to which they are applied, should have ample time to rest at night, and should be thoroughly rubbed down, dried, clothed, and made comfortable, before feeding them and closing the stables for the night,—and the more so, the more trying the day's work.

With regard to pleasure horses, which are usually in the stables, more or less, twenty hours out of every twenty-four, which are only taken out for the gratification of the owner at such times as it suits his humor or necessity, they should never be taken out or driven fast on full stomachs; which can be always avoided by letting the groom know, in case that they will be required at an unusual hour or for unusual work—when he can adapt his feeding hours to the circumstances of the case.

When harnessed and ready for a start, the driver should mount his seat quietly, gather his reins, and get his horses under way, slowly but gradually, by speaking or chirruping to them; never starting them with a jerk, or striking them with a whip,—allowing them to increase their pace by degrees to the speed required, instead of forcing it on a sudden.

It is far better for horses, to drive them steadily at a regular pace, even if it be ten or twelve miles an hour, than to send them along by fits and starts—now spinning them over the road at sixteen or eighteen miles, now plodding along at six or seven; and of two pairs of horses, driven the same distance, after the two different methods, that which is driven evenly will, at the end of the day, be comparatively fresh and comfortable, while the other will be jaded and worn out.

In regard to punishment, the less that is administered the better. A sluggish or lazy horse must, it is true, be kept up to his collar and made to do his share of the work, or the free-goer will be worn out before the day is half done; and for this the whip must be occasionally used. Even good and free-going horses will occasionally be seized with fits of indolence, at moments, induced perhaps by the weather, and it may be necessary to stimulate them in such cases. Again, at times when roads are bad, when time presses, and certain distances must be accomplished within certain times, recourse must be had to punishment; as it must occasionally, also, in cases where the animals are vicious or refractory, and where the master must show himself the master. Still, as a general rule, punishment should be the last resort. It should never be attempted with a tired, a jaded, or an exhausted horse; for to apply it in such cases is an utter barbarity; little or no immediate advantage is gained to the driver, while it may probably result in the loss of an excellent animal. It is common to see horses punished for stumbling, punished for starting; and whenever a new horse, which one may chance to be trying, starts off into a gallop after committing either of these offences, one may be sure that he is an habitual starter or stumbler, and that he has frequently undergone chastisement for them, and undergone it in vain. It is altogether an error to punish for either starting or stumbling; the one is the effect of fear, which cannot be cured by the whip; the other, in most cases, of malformation or of tenderness in the foot, which certainly cannot be treated successfully by chastisement, which, in fact, aggravates and confirms, instead of alleviating or curing.

Instead of driving at an equal pace, we would not, of course, be understood to mean that horses should be driven at the same gait and speed over all roads, and over grounds of all natures. Far from it. A good driver will, while going, always, at the rate of ten miles—we will say—an hour, never, perhaps, have his horses going at exactly the same rate for any two consecutive twenty minutes. Over a dead level, the hardest of all things except a long continuous ascent of miles, he will spare his horses. Over a rolling road, he will hold them hard in hand as he crosses the top and descends the first steep pitch of a descent; will swing them down the remainder at a pace which will jump them across the intervening flat, and carry them half way up the succeeding hill; and will catch them in hand again and hold them hard over the top, as we have shown before.

Horses in work should be watered about once, with not to exceed two quarts, after every ten miles, or every hour, if one be travelling fast; and if travelling far, they should be well fed once in the middle of their journey. This point, however, has been discussed already under the head of feeding.

In closing, we would say, always remember, in using a horse, that it cannot be done with too much coolness, too much gentleness, too much discretion, or too much kindness.

There is no better beast in the world than a horse, nor any one which, though often most cruelly misused by man, so well deserves, and so amply, by his services, repays the best usage.—*Herbert's Hints to Horse-Keepers.*

# Miscellaneous.

SPARE THE OWLS AND SAVE YOUR WHEAT.—The following letter in favor of the Barn Owl, recently appeared in the *London Times*:—

Sir,—In your impression of the 9th inst., I saw a sensible letter headed "An Owl's Larder," from Mr. Ellis, of Leicestershire, who, I make no doubt, is a benign gentleman, from his advocating the cause of a valuable and much persecuted bird, viz.: the white or barn owl. Many sportsmen give an indiscriminate order to their keepers to destroy all vermin but the fox, and among them (in many cases in the ignorance of both) the poor owl is ranked. The consequence is, in some districts they are nearly extinct, and where this is the case the stacks and barns swarm with mice. Last summer I witnessed the getting in of a small stack of wheat in Shropshire, which the owner supposed would yield enough for his family, of wife and three servants, for eight or nine months. All that he got from it fit to send to the mill was four and a half bushels. Four hundred mice were killed, and as many more we suppose, escaped. These animals, as well as young rats, require vegetation and water. At dusk they come out, and out at the same time comes the owl. No doubt they were created by an all-wise Providence to keep these vermin under, as the rook is for the destruction of the wire-worm, and the toad for slugs. If it were not so we should be eaten up.—They know by instinct how to go about their calling better than we do. If the rook and owl do pilfer a little at times when pinched by hunger, the laborer must have his hire; and with all our sagacity we cannot master them like they can. The cat kills more game in a season than the owl in his lifetime, and the farmer with salt and chemicals, which cost him a good deal of money, cannot keep the wire-worm out of his land. In former days, in the country, they had the "owlet" hole in their barns as regularly as the pitching hole, for his ingress and egress, many of which I find are stopped up. During five summers in the vicinity I have mentioned, I have only seen one owl skimming the meadows at nightfull. This year an unfortunate one flew over the cricket ground at dusk one evening, when the first thing that occurred to a young sportsman was to fetch his gun and shoot him. This is being worse than people we call barbarians, for in India they religiously, and by law, protect two useful birds—the Brahmin kite and the adjutant. In Barbary the stock is safe, where they say. "On the houses they choose for their nest no evil cometh."

THE POWER OF HUNGER.—It is hunger which brings stalwart navvies together in orderly gangs to cut paths through mountains, to throw bridges across rivers, to intersect the land with the great iron ways which bring city into daily communication with city. Hunger is the overseer of those men erecting palaces, prison-houses, barracks, villas. Hunger sits at the loom, which, with stealthy power, is weaving the wondrous fabrics of cotton and silk. Hunger labours at the furnace and the plough, coercing the native indolence of man into strenuous and incessant activity. Let food be abundant and easy of access, and civilization becomes impossible; for our higher efforts are dependent on our lower impulses in an indissoluble manner. Nothing but the necessities of food will force man to labour, which he hates, and will always avoid when possible.—*Blackwood.*

THE PROPERTY OF LIFE.—Every man, woman, and child has a property in life.—What is the value of this property? Mr. Charles M. Willich has established an extremely easy rule for expressing this value—this "Expectation of Life" at any age from five to sixty. His formula stands thus:—$e=\frac{2}{3}(80-a)$; or in plain words, the expectation of life is equal to two-thirds of the difference between the age of the party and eighty. Thus, say a man is now twenty years old. Between that age and eighty there are sixty years. Two-thirds of sixty are forty—and this is the sum of his expectation of life. If a man be now sixty, he will have an expectation of nearly fourteen years more. By the same rule, a child of five has a lien on life for fifty years. Every one can apply the rule to his own age. Mr. Willich's hypothesis may be as easily remembered as that by De Moivre in the last century, which has now become obsolete, from the greater accuracy of mortality tables. The results obtained by the new law correspond very closely with those from Dr. Farr's English life table, constructed with great care from an immense mass of returns.—*Athenæum.*

## THE WILLOW.

"Tongues in trees—books in the running brooks."—*Shakespeare.*

The willow grows beside the river
And the boughs hang o'er its flow,
Till the green leaves, as they quiver,
Kiss the waves that run below.

The river whispers to the willow
With a sad, mysterious tone,
As the bubbles of each billow
Gurgling break on bank and stone."

What saith the river, as it glistens
In the sun-glints through the tree,
While the bough stoops down and listens
To its plaintive melody?

"Like my waters, life is flying—
Brightest joys have shortest stay—
As my waves speed onward sighing,
With thy kisses far away:

"Human hopes are like the bubbles
Swoln and glittering on my tide,
Till the rocks, like earthly troubles,
Meet and wreck them as they glide."

High o'er willow—high o'er river,
Soars a lark in airy rings,
While his voice thrills to the quiver
Of his sun-illumined wings.

And the ether-vault is riven
With this glad song, as he flies—
"Seek, like me, thy joys in heaven,
And thy hopes within the skies."

—*Dublin University Magazine.*

THE ENGLISH RACE HORSE.—In Great Britain from the highly cultivated knowledge of the mechanical structure of living bodies, with the junction of best shapes—although, but for racing, this knowledge would have been comparatively in its infancy—the horse has arrived at the highest state of perfection of which his nature is capable; and in whatever country and in whatever climate, his racing powers are put to the test, he has scarcely found a rival, excepting under very disadvantageous circumstances. It is true his *lasting* qualities were doubted, and he was challenged to rebut the charge, and the following was the result:—On the 4th of August, 1825, two second rate English racers, Sharper and Mina, contended against the most celebrated Cossack horses from the Don, the Blak Sea and the Ural, in a race the cruel length of 47 miles. At starting Sharper and Mina ran away with their riders more than a mile, and up a steep hill, when the latter horse broke down and pulled up. Half the distance was run in an hour and forty minutes. In the last half only one of the Cossack horses was able to contend with Sharper, who, nothwithstanding that every foul advantage was taken by changing the weight, and dragging along his opponent by a rope, won his race in gallant style, performing the distance in two hours and forty-eight minutes. At starting, the English horses carried three stone more weight than the Cossacks; and, during the latter half of the race, the one Cossack who remained in it was ridden by a mere child.—Every trial over the desert, no matter what the distance, during 1826-55, between English and eastern horses, has been attended with precisely the same results.—*From the Encyclopædia Britannica (New Edition.)*

THE UNDEVELOPED NORTHWEST.—At a meeting of the Chamber of Commerce of St. Paul, Minnesota, held recently, a geographical report was made upon the Red River and Saskatchewan country, with a view to the development of navigation on the great rivers there abounding. The report appears to have been carefully drawn up from trustworthy sources. The Red River is said to have a depth of six feet for a considerable distance above the mouth of the Cheyenne, and below that nine to twelve feet down to Red River Lake, and thence to Winnepeg, sixteen feet. The current is moderate, being only about two miles an hour of its upper tributaries; the Cheyenne is navigable 100 miles, and the Ashboine probably 100 miles. The Red River is navigable 775 miles, and to its tributaries about 350, making over 900 miles of navigable water in this valley alone. Lake Winnepeg is about 250 miles in length. The Saskatchewan is navigable upward of 700 miles in a direct line, but, by the course of the stream, nearly twice that distance. The Bow River, or South Branch of the Saskatchewan, is also a large stream, navigable for a considerable distance. It is mentioned as a singular fact that the sources of Fraser River are separated from those of Peace River by only 317 yards, the first running into the Pacific, and the latter north-eastward into Mackenzie's River; and that a canal crossing this Isthmus would unite the waters running to the Arctic Ocean with those flowing into Puget Sound. The area reached by the navigation of the rivers above named is estimated at 400,000 square miles of fertile soil, favorable climate, useful minerals and fur-bearing and food-yielding animals.

The report goes into a particular description of the face of the country and its adaptability to cultivation, speaking with great enthusiasm of the Red River Valley; and then proceeds to describe the country further north—the Selkirk settlements, the Cumberland, Saskatchewan and Athabaska districts. It is proposed to take a small steamboat across the Isthmus, between Big Stone and Traverse Lakes, and descend the Sioux Wood River to the Red River, as soon as possible in the spring, and establish navigation on that stream immediately. It is deemed a matter of great importance to the people of St. Paul, and they are dragged to obtain the establishment of a mail route in that direction to Puget Sound. A company has been organized in Canada to carry out a similar project, having a capital of $100,000. They are to construct postage roads between Lake Superior and Red River, in all 140 miles, to place four small steamers on the reaches along Rainy River and the Lake of the Woods, one on the Red River, and another on the Saskatchewan. Should the Minnesota movement go ahead, there will be a sharp competition between these two companies for the first harvest of the new country. The meeting concluded by offering a bonus of $1,000 to any one who would pay a steamboat of a hundred tons on the Red River and run her during the navigable season of the present year, commencing on or before the 1st of June.

HOW TO DO UP SHIRT BOSOMS.—We have often been requested by lady correspondents to state by what process the gloss on new linens, shirt bosoms, &c., is produced, and in order to gratify them, we subjoin the following receipe:—"Take two ounces of fine gum arabic powder—put it in a pitcher and pour on a pint or more of boiling water, according to the degree of strength you desire—and then having covered it let it stand all night—in the morning pour it carefully from the dregs into a clean bottle, cork and keep it for use. A table spoonful of gum water stirred in a pint of starch made in the usual manner, will give to lawn either white or printed, a look of newness when nothing else can restore them after they have been washed.—*Exchange.*

ADDITIONAL SLEEPING ROOM IN COTTAGES.—.—"How are we to deal with the cottage already built? By turning the day down-stairs room to account. But how is this to be done? Sailors talk of the comfort of their hammocks. Every one who has been over a ship, knows how little room they take, and how easily they are stowed away.—The hint has not been lost on the managers of our prisons and reformatories. Go into a cell: the first question asked is, where does its occupier sleep? You are shown something like a bag, hanging by straps, from two staples in the wall, with two similar staples or hooks on the wall opposite. Two of the straps are unhooked, the cot or hammock unfolded, and stretched across to the opposite staples, and in less than half a minute, a sleeping-place, with blankets, sheets, &c., is spread before you. The bed thus provided, is used by the officers as well as the prisoners, both men and women, and is spoken of as most comfortable." Applying this invention to the day-room of cottages seems a cheap and obvious means, almost universally applicable, of providing cottages with an additional sleeping-room. As the outer-door generally opens into this room of the cottage, it is more easily ventilated than any other, and would, therefore

probably prove its most wholesome dormitory. The only obstacle to the introduction of the cot or hammock into cottages is, that there may at first be some difficulty in making cottage walls available as hold-fasts for the staples, which in prisons are built into the walls. A few trials and a little ingenuity will soon discover cheap and effectual expedients, according to the peculiarities of different dwellings. Some experiments have already been made to provide fastenings on the walls of an ordinary room, which may be seen at the Boy's Refuge, recently opened at 44, Euston-road, near King's Cross. The cots and hammocks have been found to answer perfectly, and are preferred by the boys to the iron bedsteads previously used. Some of the hands in "the Home" are now employed in making cots and hammocks, which the managers will undertake to supply at a moderate price to any persons who may be desirous of trying them in cottages. The writer believes that the "Labourer's Friend" will contribute not a little to one of the good works which its pages are designed to promote, by recommending its readers to examine for themselves the experiment that has been made at this home.—CLERICUS, in the "Labourer's Friend" Magazine.

THE GROWTH OF LONDON.—London has grown like a mighty tree, by extension rather than by the internal aggregation of constituent parts; and while foreign cities, girded round by walls, have grown denser, and have risen vertically, London has extended its boundaries freely all around, and covers now 78,029 acres—31,576 hectares—121 square miles—a square of eleven miles to the side. The population in this area amounted in the year 1801 to 958,863, and in 1851 to 2,362,236. The London of 1858 is equal to three Londons of 1801.—*Registrar General's Report for* 1858.

THE HUMAN BODY.—It is calculated that there are no less than twenty-eight miles of tubing on the surface of the human body, from which the water will escape as insensible perspiration; and although the amount of water which is thus evaporated from the surface must necessarily vary with the clothing, the activity, and even the peculiar constitution of the individual, an average estimate has been attained, which shows that from two to three pounds of water are daily evaporated from the skin. From the lungs it is ascertained that every minute we throw off from four to seven grains of water, from the skin eleven grains. To these must be added the quantity abstracted by the kidneys, a variable but important element in the sum. It may not at first be clear to the reader why an abstraction of water daily should profoundly affect the organism unless an equivalent be restored. What can it matter that the body should lose a little water as vapour? Is water an essential part of the body? Is it indispensable to life? Not only is water an essential part of the body, it might be called the most essential, if pre-eminence could be given where all are indispensable. In quantity water has a preponderance over all other constituents—it forms 70 per cent of the whole weight! There is not a single tissue in the body—not even that of the bone, not even the enamel of the teeth—into the composition of which water does not enter as a necessary ingredient. In some of the tissues, and those the most active, it forms the chief ingredient. In the nervous tissue 800 parts out of every thousand are of water; in the lungs 830; in the pancreas 871; in the retina no less than 927.

ANTICIPATING EVILS.—Enjoy the present, whatsoever it may be, and be not solicitous for the future; for if you take your foot from the present standing, and thrust it forward towards to-morrow's event, you are in a restless condition; it is like refusing to quench your present thirst by fearing you shall want drink the next day. If it be well to-day, it is madness to make the present miserable by fearing it may be ill to-morrow—when your belly is full of to-day's dinner, to fear you shall want the next day's supper; for it may be you shall not, and then to what purpose was this day's affliction? But if to-morrow you shall want, your sorrow will come time enough, though you do not hasten it; let your trouble tarry till its day comes. But if it chance to be ill to-day, do not increase it by the cares of to-morrow. Enjoy the blessings of this day, if God send them, and the evils of it bear patiently and sweetly; for this day is only ours—we are dead to yesterday, and we are not yet born to the morrow. He, therefore, that enjoys the present if it be good, enjoys as much as is possible; and if only that day's trouble leans upon him, it is singular and finite. "Sufficient to the day," said Christ, "is the evil thereof;" sufficient, but not intolerable. But if we look abroad, and bring into one day's thoughts the evil of many, certain and uncertain, what will be and what will never be, our load will be as intolerable as it is unreasonable.—*Jeremy Taylor.*

Machine for Making Horseshoes.—An ingenious machine for this purpose has been erected at Chillington Ironworks, in this town, by the inventor and proprietor, Mr. Henry Burden, of Troy, in the State of New York, and the proprietor of an ironworks in that town. Mr. Burton is a native of Dumblane, in Scotland, and from his early youth showed considerable aptitude for mechanical pursuits. From an account published of his career in the *New American Cyclopædia*, it appears that he is the author of numerous valuable inventions, including a machine for making the double-headed spike, used extensively on the American railways; and a self-acting machine for reducing puddlers' balls into blooms, which is being largely used in that country.—As early as 1835 he took out a patent for a machine for making horseshoes, which he improved upon in 1843, and this was turned to practical account by the production of a considerable number of horseshoes. The present machine, however, which was patented in 1857, is entirely different from the former ones, and is a very remarkable piece of mechanism. In the previous machines the piece of iron bar of which the shoe was to be made was rolled into shape before being bent, and the pressure of the rollers being in the direction of its length, the bar, when it was pressed, was naturally rather extended in length than width, and the widening which is required at the crown of the shoe was not properly effected. By the present plan the bar, after being heated, enters the machine by a feeding apparatus, a piece of the required length is cut off, and, by a stroke from a piece of steel, shaped like the inside of a horseshoe, is bent, and falls upon a die on a wheel beneath, corresponding to one on a cylinder above, and thus acquires by pressure the desired shape, two lateral strikers at the same moment hitting the extremities, or heels, of the shoe, and driving them inwards into the required shape. Thence it passes between another pair of dies, where it is stamped, and by an ingenious arrangement is flattened from the curled shape which the wheel gives it as it falls at the mouth of the machine. The shoes thus made are remarkable for their exactness in shape and in the position of the holes, a most important point with regard to the safety of horses' feet; and they can be produced, when the machine is in proper order, at the rate of 60 per minute, which is more than two men can forge in a day, and the superiority over shoes forged by hand is very striking. As the bar is bent before being pressed in the die, the pressure at the crown is in the direction of the width, and hence the widening is readily affected. The machine is secured by patent in this and in most of the countries of Europe. It has been erected at Wolverhampton as a central and suitable place of inspection both for this country and for any persons on the continent who may desire to purchase it, the inventor desiring to sell his patent rights in Europe. The United States Government purchase the shoes thus made, for the supply of the cavalry of the States.—*Wolverhampton Chronicle.*

Coal in the United States.—An edition of Professor Henry D. Rogers's "Geology of Pennsylvania has been issued in London, and has excited much comment in the English journals. The statements of Professor Rogers in regard to the enormous coal fields of the United States excite much surprise, and lead to many speculations concerning their possible development. The coal districts of Great Britain appear as mere specks when compared with those of America. The coal fields of Great Britain, in figures, amount to 5400 square miles; those of Europe are only 8964 square miles; while those of the United States, in the aggregate, comprise no less than 196,850 square miles; added to which the British Provinces of North America contain 7530 square miles. One of the English papers says:—"When we reflect upon what has been achieved by the produce of the coal fields of Britain, and then endeavor to anticipate the mining of the vast fields of the United States upon an extensive scale, we are led to forecast a future of almost boundless enterprise for that wonderful country." The following illustrations will convey some idea to the reader of the amount of coal there exists in Europe and America. We need not fear any scarcity for thousands of years. Averaging the total thickness of the workable coal in Great Britain at thirty-five feet, we have a total of workable coal equal to 190,000,000,000 tons. In the same way, estimating the total area of the *productive* coal fields of North America as 200,000 square miles (that is inclusive of the British Provinces), and averaging the thickness of good workable coal at 20 feet, we gain a result of 4,000,000,000,000. Or, to make these results the more appreciable: if we take the amount of workable coal in Belgium as 1, then that in the British Islands is rather more than 5, that in all Europe 8 3-4, and that in all the coal fields of North America is 111. This method of ratio is more intelligible than that of relative superficial magnitudes,—and we at once perceive that the United States possesses more than *twenty-two times* the amount of coal in the mines of Great Britain!

An Adventure of Russia Travel.—Nothing could exceed the magnificent wildness of the scene which here burst upon the astonished gazer! The full moon, whose coming had been for some time announced by the pale yellow beams which illuminated the horizon to our right, rendering every twig and spray on the pointed tips of the black-green firs distinctly visible, had now risen above the horizon, and though, from the deep shade of our dark avenue, she was herself still hidden from our view, yet her silver light gleamed over the entire forest valley, which, in the form of an amphitheatre, lay far below us, extending to the very verge of the horizon all round, and producing an effect of grandeur and magnificence indescribable. As the "Queen of Night" advanced in her starlit path, our avenue next came in for its share of illumination. On one side, the trees, and even the recesses of the forest, for a considerable distance, were lighted up as brilliantly as at noonday, while the opposite side was steeped in shade black as midnight. But a new and very disagreeable feature attended the presence of the moon, which was nothing more or less than the howling of the wolves. All parts of the forest reverberated with their monotonous and horrid outcry, from our own immediate vicinity to the most distant part of the valley we had left. While none of them made their appearance, we walked on, supposing our numbers would protect us from anything like an attack; but when, at length, several of them leisurely crossed our path—strolling from one side of the forest to the other—we deemed it prudent to retrace our steps, the speed of our retreat being considerably accelerated by the knowledge that many a fiery glance was upon us, for the glare of their fiery lenses gleamed out from their dark haunts among the trees, like cats' eyes in the dark. The carriage remained where we had left it, the wheels being imbedded to the axle-trees in the rich soft soil, of which the entire region around was chiefly composed. There was, therefore, no help for it but to do what should have been done at first, viz., unload it. In a few minutes the ground was strewed with imperials and packages; a few gay touches of picturesque costume alone were wanting to imagine a Spanish or Italian diligence robbery scene. We entertained little dread of brigands, however; our only fear was the wolves. After an hour's tugging and pushing, the unwieldy family coach at length surmounted the hill, and, the imperials and packages being reinstated, all jogged on at a snail's pace for several versts, when a soil of fine heavy sand succeeding, we were worse off than ever.—*Six Years' Travels in Russia.*

Table Mountain, the Water Reservoir of Cape Town.—Table Mountain is the terminus of a ridge of high land, which almost covers the promontory of the Cape of Good Hope. Its face towards the north-west, immediately behind Cape Town, is all but perpendicular, nearly 4,000 feet in height. When a cold south-east wind blows over this ridge, and comes to the edge of the cliff, it meets the warm air, saturated with moisture, which is constantly rising from Table Bay and the Basin in which Cape Town is situated, and immediately condenses this vapour first into a cloud, and then into rain, which falls on the mountain edge and on the *debris* immediately below it. This cloud, to observers in the bay or in Cape Town, appears to be moving forward with a curling motion, precisely as though it were pouring over the mountain, with this peculiarity, that it rarely advances far from the cliff, or descends below a certain point, where it meets the upward current of warm air, which again absorbs the dense vapour to be again cooled, and then deposited as mist or rains, so that what appears to be a heavy cloud, driven over the mountain by the south-east wind, is a beautiful contrivance of nature for the supply of Cape Town and the shipping resorting to it with the purest and most delicious water, for the water issuing from the *debris* at the foot of this mountain, resting as it does on granite, is the only source from which all the water for the supply of the 30,000 people living below it is obtained. It is most curious to see this cloud during perfectly fine weather, and when no other cloud is visible for days and weeks, constantly hovering over the mountain, and as regularly depositing its water for the large population dependent upon it.—*Mr. William Hawes, in the Society of Arts.*

A correspondent of the *London Literary Gazette*, alluded to the numerous cases of death from accidental poisoning:—"I venture to affirm there is scarce even a cottage in this country that does not contain an invaluable, certain, immediate remedy for such events, nothing more than a dessert spoonful of made mustard, mixed in a tumbler of warm water, and drink immediately. It acts as an emetic, is always ready, and may be used in any case where one is required. By making use of this simple antidote, you may be the means of saving many a fellow-creature from an untimely end."

A Lincoln Ram.—This magnum bonum sheep was bred by Mr. John Stokes, of Caldecott, Rutland, and was exhibited at Peterborough, in October, 1857, when, as a three-shearer, £70 was offered for him. Then and there the following lines were written upon him:—

He has a long thin head, a smart and lively eye,
With a beautiful bosom, and very large thigh;
He is good in his hips, with a gigantic loin,
Wide in the breast, and immense in the chine;
He's fine in the bone, and light in the jaw,
And in his whole body I can't find a flaw;
He is light in the *garbage*, and good in the rump;
He is deep-clifted through, and without any hump;
Fourteen pounds of wool's yearly shorn from his skin;
He is a Bakewell without, and a Chandler within.

The above lines will bear investigation; there were the sheep to prove them. Mr. Stokes has bred a great deal from the far-famed flocks of Messrs. Kirkhams.

Samuel Arnsby.

Millfield, Peterborough
April 13th, 1859.

*Mark La e Express.*)

Singing Shells.—Mr. Taylor, a tourist, when at Bathculao, in Ceylon, on going at night on a lake, near the fort, was struck by a loud musical noise proceeding from the bottom of the water. It was caused by multitudes of some animals inhabiting shells—at least, the natives call them "singing shells." The sounds are like those of an accordeon, or æolian harp, &c., vibrating notes, and pitched in different keys. A snail, abundant in Corfu, if irritated by a touch with a piece of straw, will emit a distinctly audible sound in a querulous tone, and which it frequently repeats if touched.

To Dress a Partridge in a Hurry.—Expedition is the maxim of all sylvan cookery, and as plucking the feathers of a partridge would be too great a tax on the time and patience of the *voyageur*, the method most in vogue is to run your hunting knife round his throat and ankles and down his breast, when taking a leg in each hand, and pressing your thumb into his back, you pop him out of his skin, as you would a pea from its pod. Then make a spread eagle of him on a forked twig, the other extremity of which is thrust into the ground, and after wrapping a rasher of bacon around his neck and under his wings, as ladies wear a scarf, you incline him to the fire, turning the spit upon the ground, and you will have a result such as Soyer might be proud of. When your other avocations will not afford time even for the skinning process, an alternative mode is to make a paste of ashes and water, and roll up your bird therein, with the feathers, and all the appurtenances thereof, and thrust the performance into the fire. In due time, on breaking the cemented shell, which is like a sugared almond, the feathers, skin, &c., adhere to it, and then you have the pure kernel of poultry within.—*Curiosities of food.*

The Endurance of Horses.—Some curious experiments have been made at the Veterinary school at Alfort (just outside Paris) by order of the Minister of War, to ascertain the endurance of horses, as in a besieged town, for example: It appears that a horse will live on water alone five and twenty days; seventeen days without eating or drinking; only five days if fed but unwatered; ten days if fed and insufficiently watered. A horse kept without water for three days drank 104 pounds of water in three minutes. It was found, too, that a horse taken after being fed and kept in the active exercise of the "squadron school," completely digested its "feed" in three hours; in the same time at the "conscript's school," its food was two-thirds digested; and if kept perfectly quiet in the stable, indigestion was scarcely commenced in three hours.

Bats and Swallows.—It is curious, by the way, to mark the analogy that exists between the swallows and bats. Each of these groups loves the air, and is mostly seen on the wing. Their food consists of the flying insects, which they chase by their exquisite command of wing; and it will be noticed that, as soon as the swallows retire to rest at dusk, after clearing the air of the diurnal insects, the bats issue from their homes, and take up the work, performing the same task with the insects of night, as the birds with those of day. Then, as the dawn breaks, out comes the swallows again, and so they fulfil their alternate duties.—*Routledge's Illustrated Natural History, by Wood.*

Salt for Horses' Feet.—Common salt absorbs moisture from the atmosphere, hence it has been in some instances applied with great success for keeping the hard-bound hoofs of horses moist. The hoofs of some horses become dry and oftentimes crack, thereby rendering them lame, if the horses are driven on hard roads. By bathing the hoof and fetlock joint with a salt brine three times a day, lameness from the above cause will be avoided. It is a common practice with some blacksmiths to rasp cracked hoofs in order to render them more tough, but brine is far superior to rasping for effecting this object.—*Scientific American.*

Swill Milk.—Some interessing facts are brought out by the Report of Doctors Reid, Doremus, and Percy, of New York, in regard to the nature of swill milk. These facts indicate that it is decidedly unwholsome. Chemical examination shows that the butter and sugar are largely decreased, while the cascin (curd) and saline matters are largely increased: that the butter is deficient in the peculiar phosphoric compound which is appropriated by the brain and nervous system: that the swill milk "is different in its component parts from country milk, and that the globules which should be contained in it are diseased, dead, and broken down, even before it leaves the udder of the cow, and that the majority of the butter globules are coated with a viscid substance, a product of their decomposition, which renders them cohesive and different from those in healthy milk. The report admits that—"Chemical analysis can at present do but little towards detecting the peculiar changes that take place in the milk of woman when she is angry or frightened, or why that change should make the child sick, nor does it tell why thunder should turn milk sour," but it is contended, and no doubt with propriety, that analysis does point out with certainty, that "milk or blood in the natural state contains certain well-defined elements, and any deviation from that state renders these fluids unhealthy, and unfit for sustaining life."

## Editorial Notices, &c.

The Scientific American.—The publishers of this widely circulated and popular illustrated weekly journal of mechanics and science, announce that it will be enlarged on the 1st of July, and otherwise greatly improved, containing sixteen pages instead of eight, the present size, which will make it the largest and cheapest scientific journal in the world; it is the only journal of its class that has ever succeeded on this continent, and maintains a character for authority in all matters of mechanics, science and arts, which is not excelled by any other journal published in America or in Europe. Although the publishers will incur an increased expense of $8,000 a year by this enlargement, they have determined not to raise the price of subscription, relying upon their friends to indemnify them in this increased expenditure, by a corresponding increase of subscribers. Terms $2 a year, or 10 copies for $15. Canadian subscribers have to remit twenty-six cents extra on each year's subscription, to prepay postage. Canadian money will be taken at par for subscriptions.

The *Scientific American* contains a bi-weekly list of all Patents granted from the Patent Office, and the most reliable information in regard to new inventions, machinery, all branches of manufacturing processes, agricultural implements, engineering, millwrighting, iron manufacture, chemistry; in fact almost every industrial pursuit receives more or less attention in its columns. Each number contains several illustrations of patented machines, &c., comprising about *Six hundred original Engravings* in the annual volume! As a Family paper, it has no superior for *real practical utility*, since in its columns will be found *useful practical recipes;* reports of the markets, and much valuable information on domestic subjects generally. In our present number will be found an article on Steam Ploughing, taken from a recent number of this excellent periodical, which our agricultural as well as mechanical readers, will perceive embraces the improvements that are every day making in this most important art.

Specimen copies of the paper with a pamphlet of information to inventors, furnished gratis, by mail, on application to the publishers, Munn & Co., No. 37, Park Row, New York.

Mowing and Reaping Machines.—We are requested to ask attention to Mr. H. A. Massey's advertisement, on the cover. Mr. Massey has frequently been a successful competitor at the Provincial Exhibitions, and we believe his machines have given satisfaction to those who have tried them.

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# Canadian Agriculturist,

AND

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## A SUPPLY OF AIR NECESSARY TO THE ROOTS OF PLANTS.

The main object of the practical farmer is to raise from the dead earth the living plant; and in order to do this, it has been found necessary in all countries, and in all ages of the art, to break up, and more or less to pulverise the surface soil. As this is the natural station for all our cultivated crops, and where they obtain a large portion of the necessary elemental food requisite for their development and maturation, certain conditions of the said surface become absolutely necessary. Moisture, warmth and air, in due proportions, are indispensable, both to the roots which are extended through the soil in search of mineral food, and to the stem and leaves which appear above the surface, one of whose chief functions being the absorption of gaseous matter from the surrounding atmosphere. An excess of moisture is commonly more injurious to plants, than the extremes of heat and air; for when a soil becomes saturated with water for any consi lerable time, air is in great measure excluded from its pores, and the slow and constant evaporation which is going on at the surface, keeps down the temperature to a degree inimical to the healthy progress of vegetation. For a soil, therefore, to be made porous so as to freely admit air, warmth and moisture, with the capability of any superfluous amount of the latter freely percolating away, constitutes an anxiom on which all our operations of ploughing, trenching, digging, draining, &c., are founded.

Soils, it is well known, vary much in their chemical composition and mechanical texture. The success of many crops depends as much upon the latter as upon the former; and in no case can the natural or artificial consistency of the soil be safely disregarded. Most of the winter wheat in Canada is raised on summer fallows; but the operation of fallowing is often so imperfectly done that a diminished crop of inferior quality is the inevitable result. Wheat, it is true, naturally covets a close soil; yet the deeper and more thoroughly it is pulverised, so as to allow air, warmth and moisture freely to come in contact with the roots of the young plant, the more freely will it grow, and the more abundant will be the produce. If, however, water should in any considerable quantity stagnate, so as partially to exclude air, and by surface evaporation produce cold, *underground draining is essential to the procuring of a profitable crop.*

That the contact of air to the roots of plants was always considered necessary, is evident from the oldest agricultural writers; but the principle was never so fully understood and acted upon, as it has been of late years. The first and most striking instance confirmatory of the opinion was the fact of large, full-grown, ornamental forrest trees having been killed by their roots being too deeply covered up with earth when leveling lawns; and planters and gardeners have long been aware of the injurious effects of planting as well as sowing too deep. Formerly it was thought that the earthy materials in which valuable exotic plants were to be placed could not be too finely sifted and mixed; whereas experience at length showed that the small particles of such soils soon run together and become a compost mass after heavy rains, thus operating against the extension of the young roots, and in great measure excluding the external air and moisture. Among coarser and looser materials, however, a considerable body of air was found to repose, and the more active fibres to extend much more luxuriantly than in closer and denser soils.

The gardener's improved practice is only another proof how much a porous soil and presence of air are necessary to the roots of plants; and yet we often see the most luxuriant vegetation produced by soils which are apparently very close in texture; such as alluvial soils and fertile clays. Both these descriptions of soils being composed of the finest atoms, become exceedingly close and compact if undisturbed; but when ploughed or otherwise periodically moved, the stirred portion attracts as much of the qualities of the air as suffices for the following crop. It is rather remarkable that while oak thrives best on a clayey subsoil, it does not seem to affect rich alluvial land, owing probably to its closeness of texture preventing all access of air to the place of the roots.

Aquatic plants, which live entirely submerged, although defended from external air, receive as much as they need from the surrounding water, which always contains a notable measure, besides nutritive bodies in solution, which form the pabulum of plants, whether aquatic or terrestrial.

Another tribe of plants are attached to the earth so slightly that their system of roots is nothing compared with the bulky heads sustained; and as these plants are mostly found on rocks, or on the driest tracts of country, it is evident that the greatest portion of their nutriment is drawn from the atmosphere.—Another tribe of curious and beautiful flowering plants is called Epiphytes; because they attach themselves to the stems and branches of trees, not to sustain themselves by extracting their juices, but to be supported in the deep shade and moist air of thick tropical woods. Some of these are called *air plants*, and grow as well in a basket without earth, suspended in a warm, damp, shady place, as if they were in their native habitat.

Thus it is apparent that atmospheric air is essentially necessary to plants, and as much so to the roots, as to the stem and foliage; and it is this fact, as already observed, that justifies all the means of cultivation which the farmer and gardener have recourse to with a view of rendering the staple of the soil more loose and consequently more permeable to all atmospheric influences.

There is one circumstance, however, which deserves to be noticed along with these general remarks; it is this, that all seeds require to be closely embedded in the soil, that is, they should be in close contact with the mould on all sides; and, that this should be completely secured, some seeds in particular soils require a mechanical pressure of the earth upon them, as wheat for instance. Now, we have only to consider that as the soil has been previously prepared, and more or less reduced to the finest practicable state, a considerable volume of air is incorporated therewith, and that this air, according to its temperature and the moisture of the soil, facilitates the germination of the seed, and continues to assist the development of the plant. To obtain this close embedding of the seed

on light, porous, soils, it is the practice to press it in, a practice which is found of service to wheat, peas, beans, and almost all small seeds; but which would be of no avail without the previous disruption and æration of the soil.

All these matters premised, it only remains to conclude with a general declaration that, in all our practices and means employed for the amelioration of the land, everything that can be added or taken away, every operation performed, and every implement used in the culture, should all have for their ultimate object, either directly or indirectly, the breaking up of the compact and impervious surface, so that copious and constant supplies of air may be freely admitted to the roots of plants.

## MR. JONAS WEBB'S RAM LETTING.

The thirty-third annual letting of South Down Rams, from Mr. Webb's world renowned flock, in Cambridgeshire, England, took place on July 7th; a few particulars of which, gleaned from the very interesting and copious report in the *Mark Lane Express*, will not be unacceptable to our readers. The number of rams offered was 175, and the number actually let on the occasion 54; yielding a total receipt of £1,376 11s., or an average of £25 9s. 10d. per head; being £4 10s. over the average of last year. A four years old ram obtained the highest price—put up at 50 guineas, and let at 70 guineas to Mr. Rigden of Sussex, to which county several of the higher class animals went. It is curious that although this celebrated breed originated in this county, the flockmasters of Sussex find it beneficial to import more or less annually, from the flock of Mr. Webb in Cambridgeshire; affording striking evidence of that gentleman's skill, and the advantage of getting occasionally from a distance breeding animals, as well as seed grain. We observe that Mr. Webb's yearling rams yielded fleeces of wool, varying in weight between seven pounds and ten pounds eight ounces! Mr. Webb is in the habit of letting privately a large number of his rams, before and after the annual meeting. He said that he had just received an order to send a ram to the United States at 150 guineas.

The letting concluded, about 200 gentlemen sat down to an elegant dinner. Among the company we notice Mr. A. Dight, of New South Wales, who is about to take to that colony a number of Mr. Webb's short-horn cattle and Down rams. Mr. Luther H. Tucker, Jr., of the *Country Gentleman and Cultivator*, Albany, N. Y., was likewise present, whose reply to the toast, "The healths of our friends across the Atlantic," we deem worth subjoining:—

Mr. Tucker said, in two respects Old England—for they were still fond of calling her Old England across the water—was so famous, viz., for her hospitality and for her agriculture; that while he was sure that neither could excel the other, he was equally sure that it would be difficult to find elsewhere an example of both similar to that which had been witnessed during the day. And when he saw so many gentlemen connected with the pursuit of agriculture, not as a recreation or as a means of spending money, but with something of that energy which had placed British commerce and British manufactures in their present proud pre-eminence, he could not but appreciate the solid basis on which English institutions stood, and the services which had been performed for agriculture by such gentlemen as Mr. Webb. American traders and merchants, when they wished to secure the best, had recourse to the achievements of British genius and the excellence of British products; and American farmers acted on the same principle. The prodigies which had been performed in the improvement of the sheep and swine, and the creation of such a breed as shorthorns in cattle, were no less triumphs of genius; and for whatever excellence Americans could boast in their show yards, for that kind of animals capable of producing the most beef, mutton, and

pork at the least expense of time and food, he most willingly and cordially acknowledged their indebtedness to English breeders, among whom he was most happy to find himself that day, and many of whose names were known all the way from France to Australia, as well as on the banks of the Hudson river where he lived, and the still more distant and almost boundless prairies of the Western States. He might conclude by expressing the pleasure with which he had observed that Mr. Cobden—who had just returned from a journey in America, and whom he had the pleasure of meeting there last spring—in his first speech after landing at Liverpool gave the fullest assurances derived from his own personal observation and knowledge, that the people of America still looked back to England—although perhaps as a grown-up and somewhat wayward boy might look back to the home of his fathers—with the deepest sympathy in all the progress she could make, with the utmost confidence in the good will of her inhabitants, and with the proudest anticipations for her future no less than for their own.

# Correspondence.

## REMARKS ON MR. CAIRD'S PAMPHLET:

ENTITLED "PRAIRIE FARMING IN AMERICA, WITH NOTES BY THE WAY, ON CANADA AND THE UNITED STATES."—NEW YORK EDITION, 1859.

MR. EDITOR—

Goethe has said, "It is not by attacks on the false, but by the calm exposition of the true, that good is to be done." Taking the above as an excellent rule of action, I have given Mr. Caird's Pamphlet, entitled "Prairie Farming in America," a very attentive perusal, and I think Mr. Caird deserves much credit for the candid way in which he has treated the subject of the British settlers' prospects in Illinois, in very many points of vital importance. The inferences, however, which may be fairly drawn from the facts and figures he has given us, are in many instances, calculated to produce a widely different result from that which he appears to have anticipated, and no doubt expects his readers to arrive at. Without dwelling upon the report that Mr. Caird is personally and largely interested in the Illinois Central Railroad Company, and their lands, I proceed to examine the merits of his pamphlet.

The prevalence of ague to which Mr. Caird has alluded in pages 11, 12, 28, 29, 40, 59, 64, 75, 95 and 96, New York edition, especially in pages 95 and 96, where he gives the experience of a leading physician of twenty years practice, cannot fail to be very appalling to intending emigrants who carefully peruse his work, especially as this physician plainly states that in his opinion "old people ought not to come (to Illinois) at all, as the ague is very fatal to them," and adds by way of solace, that, "Chicago (being an older settlement) was now almost free from ague, that typhus had taken its place in a greatly modified extent, and that pneumonia and rheumatism were the only other diseases that were severe." Candid and explicit as these warnings are, it may be fairly added, that the very great prevalence of ague and the total prostration with which it is accompanied, often extending even weeks and months together on these prairie lands is not sufficiently pourtrayed. It not unfrequently happens that whole families are so prostrated, that it is with difficulty any one member of it can be found able to alleviate the sufferings of the rest, and in remote situations it is often extremely difficult to procure aid from other families. The effects of this prostration are often very seriously felt in the delay and even non-performance of the necessary farm-work, the neglect of cattle, and often the partial loss of a season's crops. For this reason, if farmers *are determined* to settle on prairie land they should make arrangements for three or four or more families, to settle together, and, in charity, Mr. Caird should have suggested this; but it is my purpose to show that settlers in the bush of Canada have much better prospects in every way than in the prairies of Illinois, not only as regards the comparative freedom from ague, but for acquiring actual prosperity and speedy independence. In endeavoring to show this I will take Mr. Caird's own representations as the basis; although very great errors have crept into his work, seriously affecting the general character of Canadian soils and Canadian farming. The quotations of a few passages will serve to show how hurried must have been his ride through the country, how very erroneous the ideas

which he formed. At page 20 he says, "From Prescott to Kingston, and thence to Cobourg, the country is but partially cleared; very often the train shoots for many miles together through the primeval forest, a path having been cut in the woods for the railway track, and the felled trees and branches still lying where thrown, on both sides of the line." This latter assertion may be *literally* true, but Mr. Caird himself, as well as his readers, will be surprised to learn, that at least seven-eights of this very route is through a remarkably fine agricultural country; through lands held by the very best and most successful farmers, having very large clearances, comfortable dwellings, and out-houses, and good orchards. The counties from Prescott to Cobourg, through which Mr. Caird's route lay, contain 240,000 inhabitants. For twenty years there have been fine herds of Ayrshire and Durham cattle, little inferior to the best cattle in England, and even 40 miles back of the frontier, may be seen farms of from 200 to 400 acres, well cultivated, heavy crops, excellent horses, cattle and sheep. The Railway track was made through the rear part of their farms, purposely reserved "in primeval forest," for firewood; three-fourths probably more of their large farms being under cultivation. The Railway Company purchased the land *in rear* because the farmers did not wish their farms to be intersected by railroads, and they sold the land in the rear cheaper than they would have sold any other part of their farms. The quotation above given, shows the great danger of judging a country merely by a railroad ride; and the danger of *publishing* the impressions thus erroneously acquired, especially by so well known a man as Mr. Caird, is greater still.

This may be further illustrated by extracts from pages 26, 27, 28, and 29; and it is certainly much to be regretted that Mr. Caird remained so short a time in Canada, and took such a very cursory glance of the colony. Many of his remarks are truthful and valuable, but no individual, travelling as Mr Caird did, *could* form a correct opinion of the agricultural status and prospects of Canada. At page 26, &c., he says, "the country from Hamilton to Paris is undulating, and seemed an easier and more fertile soil, very little of it is wholly cleared; certainly more than half is still an unbroken forest, but the trees are immensely tall and show the rapid growth which only a fertile soil could produce. Though this district is quite within the limit of the profitable culture of Indian Corn, a small proportion only of the land seems to be occupied by that crop. Its great value is everywhere admitted, but on this description of soil its cultivation demands too much labor. The last grain crop can hardly have been great; for in very few instances indeed, are ricks to be seen outside the barns, and they are not capacious enough to contain large crops," &c.

Had Mr. Caird journeyed through this country in any other way than by railway, he would have formed a much more correct opinion of the extent under cultivation; this he has very much underrated. Fully three-fourths of this whole district of country is cleared and enclosed, and a large portion of it highly cultivated. If there was little Indian Corn in 1858, it was because other crops promised to pay better, and the spring of 1858 was peculiarly wet and cold; but there is a very large extent of it this year, and although a little late it will prove an abundant crop. The absence of ricks outside the barn, as alluded to by Mr. Caird, is owing to the great abundance of timber, and the great facility with which Canadians construct large barns, quite sufficient to hold even very luxuriant crops. Every good Canadian farmer provides substantial covering for his whole crops, instead of having recourse to ricks with their temporary covering of straw. The material, except nails, they have within themselves, and most of them can help to build them. The work of building a barn 60 feet by 30, and 18 feet post, can be done for £40 stg.; and most good farmers have two if not three of these large barns, besides long sheds in which to store hay &c.; so that the absence of ricks is no criterion of deficiency, but on the contrary, their presence is rather a sign that the farmer is a new settler and as yet unable to put up the permanent covering for his produce, which old and successful farmers universally provide. As to Mr. Caird's assertion that on this "easier and more fertile soil" the cultivation of Indian corn demands too much labor, it may be safely urged that labor is cheaper in Canada than in Illinois, and that the corn crop is nearly as productive in the district he alludes to as it is in Illinois, and being of much superior quality sells at a much higher price. The fact is, that wheat in this district has been hitherto so fine and selling at such high prices that the growth of Indian Corn has been neglected too much for the welfare of the farmer. This very part of Canada which Mr. Caird describes in the above quotation is noted for producing the very finest samples of wheat, weighing 62 lbs., and even 63 lbs., to the Winchester bushel, and has for years carried off the Canada Company's prize of

$100; and it was in this district that the prize wheat exhibited at the Crystal Palace in England, was grown. There are often from 50 to 150 acres of wheat on one farm in this section. The great inducement to sow wheat, has hitherto caused many farmers to tresspass too much perhaps, upon the properties of the soil required for this crop; but if Mr. Caird were this year to visit this part of the country, and view it (not from a rail-car window) he would find more extensive fields of his favorite crop, and likely to pay a higher *acreable* profit than the Illinois prairie land, because the prices in Canada are almost always double those of Central Illinois, where the corn is of a coarser description. This perseverance in the growth of wheat is an evil that time will remedy; especially as the growth of other grain and also sheep, and dairy farming, are more certainly remunerating. Another extract from page 28 gives a remarkable instance of misguided judgment and grievous misrepresentation, the first clause however, of the extract being perfectly true.

Mr. Caird says, "a light sandy loam of good quality, only half cleared, is still valued at from £7 to £8 an acre, (sterling no doubt, as all his pounds are sterling throughout the pamphlet). It is this comparatively high price of land in addition to the cost of clearing off the timber, that forces the emigrant westwards to a country where better soil with equal facilities of transport, can be bought for less than the mere cost of clearing this of its timber."

Taking the word "westwards" to mean Central Illinois, which seems to be the summit of Mr. Caird's American predilections, it may most safely be asserted that the soil there is *not better*, that the facilities of transport are *not equal*, and that even supposing land in Illinois could be bought for less than the mere cost of clearing in Canada (say £3 10s sterling per acre), Mr. Caird has omitted to state the value of the timber cleared off. He will be surprised to be told that many pine trees on these very farms are and were worth from 6s to 15s each. It is not unusual for one tree to produce five saw logs of 12 feet long each, worth 4s to 5s stg., each log. The timber alone, of well grown cedar swamps in all the settled districts of Canada West, is worth £4 to £5 per acre on the spot; and even if the hard wood is all burned to ashes, the ashes of 3 acres will, with very little outlay of capital or labor, produce a barrel of potash worth £6 sterling. The value of the timber on our wild lands in good situations, where saw-mills, or rivers to float saw-logs, are accessible, is very considerable. Our forests, instead of being a bugbear to the intelligent emigrant, are a very great source of wealth, and enable him to pay for his land and erect the required buildings, and supply fence rails and fuel, sugar, &c., which the settler on the prairie has to purchase, and sometimes at very high rates. That the soil is not better in Illinois than in Canada West, can be easily proved. Which gives the largest crops of wheat per acre of the best quality? Decidedly Canada West. The probable average of Illinois is stated by Mr. Caird at pages 55 and 89, as 20 bushels per acre, but at pages 54 he gives the *probable* yield at 18 to 20, and the *real* yield "nothing but shrivelled husk;" and again at page 52, as nearly a total failure, and 600 acres killed by frost, and at pages 75 and 76, he gives the yield of 1857, as little more than 6 bushels per acre, and according to the United States census of 1850-51, Illinois did not yield ten bushels per acre, whereas the average of all Canada West that year was 16 14-60, and of the counties to which Mr. Caird alludes to in the above extract, the average was 21 bushels. Then as to *quality of wheat*, that of Central Illinois is notoriously inferior. Merchants in Toronto import large quantities of it at about half the price of Canada wheat for distillery purposes, not being fit for making flour, except what is denominated by the Americans, "Stump-tail flour," being of a third or fourth rate quality, and this is the general character of the prairie wheat in Central Illinois. Then as to price, Mr. Caird quotes it in several places at 3s stg., (75 cents). At the very time Mr. Caird quotes this as being the price in the Illinois markets, Canada wheat was selling in Toronto and Hamilton and all our frontier markets, at exactly double that amount, 6s. stg., ($1.50) and at this date Upper Canada wheat is selling in our markets at double the price of Illinois wheat in Illinois markets.

Let old country farmers remember this, that even supposing the yield of bushels per acre to be the same, the price in Canada is double and of course the value per acre double, and giving Mr. C.'s own averages, 20 bushels per acre, and his own prices, 3s. stg. per bushel, the Canadian farmer would pocket £3 stg. per acre more than the Prairie farmer in Illinois; and this £3, be it remembered, is good interest for £50 on every acre of land sown in wheat, say one-sixth of the whole arable land, or £8 6s. 8d. per acre on all the wheat producing land on the farm.

As far, therefore, as the culture of *wheat* is concerned, the settler in Canada West has a vast advantage over the settler in the Illinois prairie, the yield, the quality and the price being all superior in Canada West. The peninsula of Upper Canada consists of soils similar to those of the Genesee valley, in the State of New York, distinguished for the finest quality of wheat, which the American miller eagerly buys to mix with the coarser wheats of the Western States. Canadian wheat makes the very finest flour, whilst Western wheat makes only second and third rate qualities. The area of the fine wheat growing lands on this continent is very limited, and Upper Canada occupies a large portion of it.

But, says Mr. Caird, "Indian Corn is the great staple in Illinois." Let us take him at his own shewing, and let us see the result. The average produce he gives in two places is 50 bushels per acre, and at another 40. The price at page 61, is 8d. per bushel; at page 74, 10d.; and at another place, page 51, one farthing per pound, or 1s. 3d. per bushel; at pages 87 and 89, 1s. 8d. per bushel. Taking the price at 1s. 3d. sterling on the spot, and the produce per acre at 50 bushels (which is far too high an average, 40 being much more like the truth) we have £3 2s. 6d. per acre the produce of a good average corn crop in Illinois. The cost of twice ploughing, planting, horse-hoeing, &c., is at least £2 2s. 6d. per acre, and the prairie farmer has £1 per acre at this shewing for himself for interest on his purchase money, fencing, buildings, &c. Mr. Caird has truly and admirably said (page 54):—"If a man buys 600 acres and has not the means of cultivating more than 60, the 540 acres are a dead loss to him. He has to pay either the price or the interest of the price of this large, unproductive extent of land. The produce of the 60 acres is called upon to bear not only its own burden, but that of the nine-tenths which are idle.—'The lean kine thus eat up the one fat one.'" Probably four-fifths of the settlers buy what is called one quarter section (being 160 acres) and are not able for two or three years to cultivate more than the fourth of it; thus, the 40 or 80 acres under cultivation or whatever it may be, has to pay the whole interest on the purchase money of the 160 acres, and of the house and buildings erected. The rent or interest of course will vary, but taking the price at £3 sterling, and the fencing at 16s. per acre, and the buildings, &c., at £100, the rent of 40 acres cropped, with house built would be about £42 10s., thus:—

| | | | |
|---|---|---|---|
| First cost of Land, at £3 per acre | £480 | 0 | 0 |
| Cost of fencing 160 acres, at 16s. per acre, being 640 rods, at 4s stg. | 128 | 0 | 0 |
| Buildings, Well, &c., &c. | 100 | 0 | 0 |
| | £708 | 0 | 0 |

This £708 at 6 per cent would be about £42 10s., or 21s. 3d., sterling, per acre, leaving the farmer minus 1s. 3d. per acre on the actual cost, giving him barely laborers' wages and no interest for his working-cattle, implements, &c., &c. The fencing of 160 acres, requires 640 rods of fence, which, at a very low calculation, is worth $1 per rod, or 4s. sterling. Mr. C. makes the expense of fencing £60 pounds per mile (see page 55), but considering that price too high, I have taken £40 per mile. If a whole section is purchased (a mile square) the outside fence on all the sides would be four miles, and the acreable cost of enclosing would be much less than where only a quarter section is purchased; but every prairie farmer as well as every other farmer requires sub-divisions of his farm, and 16s. sterling per acre, is a very low estimate of the cost of fencing on any farm. So that Mr. Caird's representations, at pages 89 and 90, where he says: "The third year begins by the prairie farmer finding himself the unincumbered owner of his land, all fenced and improved, with a stock of horses and implements, and the whole of his original capital in his pocket," is a monstrous delusion, calculated to do immense injury to his readers, who may be thereby tempted to settle on the agueish, treeless, shelterless and arid prairies of Illinois. The idea, too, expressed at page 90, that, "he may continue to crop his farm with Indian corn, from which he will reap very large returns on his capital," is, to say the least of it, a much too glowing and sanguine view of the prairie farmer's prospects. At page 60 he gives the opinion of a Mr. Brown, an old farmer in the country, "that more money has been made, and may be made, in this state by *stock* farming than by corn growing;" and adds, (page 61) "but he has not found short horned stock so successful on the natural prairie grass, of which, on his own lands, he has no longer any."

To give us an idea of *stock* farming, Mr. C. tells us (page 71) that "Oxen of 3 years

old, large, and in what we should reckon fair condition for stall feeding, are valued here, *i. e.*, central Illinois, at not more than £4 l" And again, at page 60, he quotes the price of beef at 2d. per lb.; and at page 72, a Kentucky farmer admits that two acres of his best blue grass land in Illinois, were needed to fatten a 3 year old short horned ox. At these prices stock farming cannot be profitable at all, and if *better* than corn growing, what inference may we draw? The story of the ox and the two hogs eating a hundred bushels of Indian corn, (page 74) and then being sold at 2d per lb., is not calculated to give very favourable views of prairie farming. It is well Mr. Caird has so frankly represented these facts to enable British farmers to judge for themselves. It may be well to state here that cattle, sheep, beef, mutton, pork and grain of all kinds in Canada, are fully double the prices quoted by Mr. Caird as being the prices in central Illinois; and intelligent British farmers will no doubt govern themselves accordingly, especially as all other crops, except Indian corn, are more productive in Canada West and labour quite as cheap. These high prices may be supposed to militate against mechanics and manufacturers, but where agricultural products are high, mechanics find more employment and better wages than when they are low. The farmers being more prosperous are better able to carry on improvements of all kinds. Mr. C. at page 50 quotes the wages of a journeyman carpenter at 4s. per day with his board; these wages are rather lower than in Canada, but the colony has suffered so severely by the late exceptional reverses that there is little employment for tradesmen at present at high wages. If we have a good harvest and an average crop, times will improve rapidly, but it may be safely stated that it is not probable that either Illinois or Canada will ever again reach that state of inflated prosperity, caused by the late expenditure of millions of dollars in the purchase and formation of railway routes. The benefit to the Colony will be permanent and substantial, but the first pioneers of the benefit will probably be severe sufferers. Mr. C. has well said, and it appears true with regard to Canada also, that, "the development of railway accommodation has been too rapid and has for the present outrun the immediate requirement of Illinois."

I have alluded to the fact that wheat and all other grain, except Indian corn, are more productive in Canada West than in central Illinois. The circumstances of climate are perhaps the chief cause of the superiority of Canada West. The great wheat producing countries of Europe lie between the 50th and 59th degrees of north latitude where the summer temperature is from 55 to 65 degrees, but in central Illinois, where the latitude is about 38°, the summer heat is 78° and often as high in the shade as from 90° to 100° in June, July and August. This climate is too hot for the profitable culture of European grains or grasses; they grow there, it is true, but are generally of a very inferior description. The wheat this year (1859) is fortunately a very tolerable sample, and the yield a fair average; much of it was harvested the first week of July; one very large field, I was told by a farming friend who witnessed the operation, was cut with a "heading machine," *i. e.*, the heads of the wheat were cut off immediately below the ear, and dropped into a box which was emptied into waggons accompanying the machine. The straw, being of little value, was left standing.

As far as regards the wheat crop, this year is an improvement upon several of the past years; but as to other crops, barley, oats, rye and peas, there does not appear to be much change for the better. With the exception of Indian corn they are not by any means extensively or successfully cultivated.

By the last census of Canada, taken in 1851-'52, her population was about 1-13th of that of the Union, her occupied acres about 1-17th; yet her growth of wheat was very nearly one sixth of that of the whole Union, of barley it was more than one-fourth, and of oats one seventh. Of all grain, exclusive of Indian Corn, Canada produced *one-sixth of that of the whole Union, territories included.*

These are important facts for the consideration of British emigrants, who instead of settling on the bleak prairies of the United States, may wish to enjoy a climate not very different from their own, and decidedly healthful; and who may wish to cultivate the same species and description of grain that they have been used to, or to continue their dairies, or to indulge in their beef and mutton producing tendencies, with a fair hope of remuneration.

The prospect of having but little fruit in Central Illinois, is another very important consideration. The land where trees do not naturally grow, can scarcely be expected to be very congenial to fruit trees. It is only too true, that in many parts of Illinois, fruit trees will not thrive.

Another extract from Mr. Caird (page 29) is worthy of comment, as it portrays a

great want of knowledge of facts with regard to the relative increase of population in Canada and Illinois, and is calculated to mislead his readers. Mr. C., says "Canada West is richer than Canada East, and it is more populous, but there is a richer Territory still farther west, where labour is yet more productive, and, though in the present state of the country the risk of health is greater, it is ten times more populous, for men push on to the land in which they can most quickly and easily earn an independence."

What will Mr. Caird himself say when he is told that Canada West has increased in population in a much greater ratio than his favorite State of Illinois.

By the United States census of 1850, it appears that the three states of Ohio, Michigan, and Illinois, contained in 1830, 1,126,851, and in 1850, 3,505,000; a little over 320 per cent. in 20 years. Canada West contained in 1830, 210,437; in 1850, 791,000, which is over 375 per cent. for the same period of 20 years, so that the increase in these choice states was 55 per cent. less than that of Canada West during the same time. Some of our Counties in Canada West, viz.: Huron, Perth, and Bruce, have increased 571 per cent. in ten years.

Comparing the last decade of Canada West with that of the United States, we find that the increase during the ten years, from 1840 to 1850, was 35.27 per cent., whilst that of Upper Canada was 104.58 per cent.

We have had no census in Canada since 1851-52, but there is every reason to believe that the ratio of increase, not including immigration, has continued very much the same, and there is a *certainty* that Mr. Caird's representation as to comparative increase of population in Illinois is entirely *erroneous*. Immigration to the United States has fallen off quite as much in proportion as that into Canada. The statement that an independence can be more quickly and easily earned in Illinois than in Canada West, is simply a delusion, and has been frequently proved by the return of settlers, who, like Mr. Caird, were attracted by the more inviting appearance of prairies to old country eyes. But as Mr. Caird has given a Dr. and Cr. for Illinois, at page 89, I will give a similar one for Canada. Let old country capitalists who can command the required sum, (say £750 stg.) diligently compare the two, and keep in mind the permanent difference in the quality and prices of produce, and the healthfulness of Canada, and the choice between the two will be no difficult matter to decide, even in the matter of dollars and cents, without alluding to our British Constitution, our British feeling, our British tone of morality, our British social atmosphere, &c., which Britons always appreciate more highly after a short residence in the United States.

Mr. Caird thus gives the probable Dr. and Cr. of 100 acres of land for two years in Central Illinois.

Dr.

| | | | |
|---|---|---|---|
| Cash price of 100 acres, sterling | £200 | 0 | 0 |
| Contract price of fencing, breaking, sowing with wheat, reaping and threshing, and building a laborer's cottage and stable and shed | 250 | 0 | 0 |
| Capital invested in the purchase of four horses, implements, and harness | 110 | 0 | 0 |
| | £560 | 0 | 0 |
| Second year, wages of two men, horse-keep, taxes and accounts | 200 | 0 | 0 |
| | £760 | 0 | 0 |

Cr.

| | | | | | |
|---|---|---|---|---|---|
| First crop of wheat, 2000 bushels at 3s. 6d., £350, second crop, Indian corn, 5000 bushels, at 1s. 8d., £416 | £766 | 0 | 0 | | |
| Surplus after the second crop, besides the value of the land and stock | | | | 6 | 0 | 0 |

In Canada West the Dr. and Cr. are on the same basis. Taking 100 acres brought into cultivation, would stand thus:—

Capitalists can bring 100 acres into cultivation in Canada, as well as in the United States, although such a thing is seldom or never done that I am aware of.

Dr.

| | | | |
|---|---|---|---|
| Cash price of 100 acres of land, at 3s. 3d. | £ | 16 | 5 0 |
| Contract price of clearing, fencing, and seeding, at £3 10s. per acre | | 350 | 0 0 |
| Contract price of building a small house or shed | | 50 | 0 0 |
| Capital invested in oxen, (two yoke) chains, &c. | | 34 | 0 0 |
| Capital invested in Potash Kettle | | 10 | 0 0 |
| Capital invested in labour making potash and barrels | | 40 | 0 0 |
| Second year, board and wages of 3 men, and 5 in harvest, ox keep, &c. | | 180 | 0 0 |
| | £ | 680 | 5 0 |

Cr.

| | | | | | |
|---|---|---|---|---|---|
| Pot ash 20 barrels, at £6 | £120 | 0 | 0 | | |
| Pine timber, say 100 trees, at 6s. | 30 | 0 | 0 | | |
| (Where the timber is good for making potash there is not much pine for this reason I have set down a small sum.) | | | | | |
| First crop of wheat 2000 bushels at 5s. | 500 | 0 | 0 | | |
| Second crop, barley, rye, oats, peas, and potatoes, at £3 per acre, average | 300 | 0 | 0 | | |
| | | | | 950 | 0 0 |
| Surplus after the second crop, besides land &c. | | | | £269 | 15 0 |

This comparison which is justly and fairly given, shows that the Canadian capitalist has the advantage over the prairie capitalist of £269 15s. stg., in two years; and to show that these representations are by no means overdrawn, I give below the *official* published returns by our Government Agent, on the Ottawa, of the total produce of 800 acres of newly cleared land, for the year 1858, with the prices which he has attached, and which are not such as may be deemed exceptional.

Mr. French says:—"Upon these 800 acres there were raised:—

| | | | |
|---|---|---|---|
| 5726 | bushels of Wheat at $1 per bushel | $5726 | 00 |
| 2916 | " Oats at 40 cents per bushel | 1166 | 40 |
| 149 | " Barley at 50c. per bushel | 74 | 50 |
| 168 | " Indian Corn at $1 per bushel | 168 | 00 |
| 16799 | " Potatoes at 40c. per bushel | 6718 | 80 |
| 6350 | " Turnips at 10c. per bushel | 635 | 00 |
| 87 | tons of Hay at $5 per ton | 435 | 00 |
| 260 | tons of Straw at $4 per ton | 1040 | 00 |
| 4012 | lbs. of Sugar at 10c. per lb | 401 | 20 |
| 108 | barrels of Potash at $24 per barrel | 2592 | 00 |
| 9249 | bushels of Ashes at 8c. per bushel | 739 | 92 |
| | Making a total of | $19696 | 82 |

and showing the average value of each acre to be something over $24 60c. or £5 sterling for one year," an amount far above Mr. Caird's representation of the Illinois Prairies. For *three* of the above articles, viz., potatoes, hay, and straw, a market could not be found on a prairie farm; and three other articles, potash, ashes, and sugar, could not be produced. Mr. French has omitted to give credit for the timber used in their houses and sheds, or sold to timber merchants.

Let old country farmers carefully compare these two statements, and remember also that they are likely to have good health in Canada, good water, and plenty of it, and no necessity for Artesian wells 127 feet deep; good apples and pears and small fruit, and vegetables of every kind in abundance, good markets for every thing they grow, good timber for their houses and fences and fires, and a good Government that provides handsomely for the education of their families—even much better than in the United States—and if they will be guided by the honest opinion of a man of 25 years experience in Canada as an agriculturist, they will pause before they prefer the prairies of Central Illinois to the woods of Canada. The woods modify the heat of summer and cold of winter, whilst the Prairies of Illinois are subject to terrific winds and storms and snow in winter, and often most dreadful and devastating fires—and the ever falling leaves of our woods are ever depositing a rich compost, far superior to that of the long

thin prairie grass. There is still another very important consideration regarding these level prairie lands, that is, that many of them cannot be settled on till drained of the sour and unwholesome surface water, and, from the nature of the country, draining is a very expensive operation, and not unfrequently entirely impracticable. Deep permanent springs are often very difficult to find, and there is much suffering both by man and beast for want of really good pure water.

To corroborate what I have said, with regard to the deficiency of the yield of wheat, and other crops in the United States, I give below a quotation from a very late and very clever publication by John Jay, being "A statistical view of American Agriculture, its home resources and foreign markets, &c., in an address delivered at New York before the American Geographical and Statistical Society, on the organization of the Agricultural Section," New York, 1859. "The average number of bushels of wheat to the acre in Alabama and Georgia is five; in North Carolina, Virginia and Tennessee, seven, ranging upwards in the other States until it reaches twelve in New York, Ohio, and Indiana; thirteen in Maryland and Vermont; fourteen in Iowa and Wisconsin; fifteen in Florida, Pennsylvania and Texas; and sixteen (the highest average) in Massachusetts. Oats range from ten bushels to the acre through various intermediate gradations, to thirty-five and thirty-six bushels, which is the highest." The journal of the Highland Society of Scotland thus observes. "If the above statement, as given by Mr. Jay, be correct, the state of farming in many parts of America must be indeed in a wretched condition—the American maximum corresponds to our minimum," adding however the following, which appears to be only too true with regard to late years, but reports of this year's crop indicate that the evil is not progressing. "We believe," says the *Journal*, "that the wheat crop has recently suffered much from the increased ravages of insects, and from various diseases to which it seems to be becoming more and more subject."

Since the above was written, the prospects of the wheat crop in the United States this year appear to be more promising than usual, and in Canada there is every prospect of a very handsome return. From all quarters of Canada West, reports have been sent to this office of expected large crops of wheat, say from 30 to 40 bushels per acre, and of spring grain most abundant supplies, including that of Indian Corn, and corroborative of what I have stated, with regard to the yield of this grain in Illinois not exceeding 40 bushels per acre, I again quote Mr. Jay's statements, as given by the same journal:—"Commencing, he says, at eleven bushels per acre, the returns of produce of Indian Corn range, through various gradations in the different States, up to 32 in Vermont and Iowa; 33 in Indiana; 34 in Missouri; 36 in Ohio, and 40 in Connecticut." This last is the highest return given.

I am Sir,

Yours with respect,

WILLIAM HUTTON,
*Secretary Bureau of Agriculture.*

Toronto, July 22, 1859.

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## THE WHEAT-FLY, AND THE REMEDY.

*To the Editors of the Agriculturist.*

The attention of the country seems now to be fully roused to the importance which must attach to this subject, and it is certainly time that the evil threatening western Canada, through the destruction of the wheat crops, should cause farmers to devise some means by which to save their grain; or in case that can not be done, to adopt in time a system of culture that will enable them to turn their attention successfully to the raising of products heretofore much neglected.

The midge advances gradually through the country, at the rate, it is supposed, of about 10 or 12 miles each year, but its progress varies according to the nature of the ground, and through peculiarities of the season. A few lead the way, their numbers gradually increase, and the unwary and hitherto inexperienced farmer is seldom aware of the presence of his unwelcome visitor till the second or third year of his occupancy. Once established, there *he remains*, and sends forth fresh broods to cover new territory. The writer first encountered the wheat fly in a remote parish of Lower Canada in the

year 1837, the grain was then being partially destroyed, and the inhabitants looked upon their loss as temporary, supposing their enemy would soon pass away, as does the Hessian fly and others; in this however they were mistaken, for the evil rapidly increased, and is in full force there to the present day.

In the island of Montreal are to be found some of the best farmers that Canada can boast of—these gentlemen and others, more than twenty years ago, went through a series of experiments in order to find the vulnerable point, if any such existed, of their apparently insignificant enemy. They tried the effect of top dressing and manuring the soil with substances thought to be destructive to insect life; they steeped their seed in poisonous solutions; they avoided seeding down with clover; they sowed lime broadcast over the standing grain, till the heads sometimes presented the appearance of having been whitewashed, and Mr. Evans, late of the Cote St. Paul, applied in the same way a mixture of scotch snuff and wood ashes, sown when the dew was heavy, but all to no purpose. By means of various paragraphs in the newspapers, is revealed the fact that our farmers here are enacting over again the expedients above detailed, and long ago exploded as worthless. They, in the end, will probably arrive at the same conclusion that the others did, viz: that nature has so protected from outward attacks the life of the fly and its young, that nothing is likely to exterminate them but an entire cessation in the production of wheat throughout the land. The researches made, as above mentioned, however, did not cease upon finding the midge effectually resisted all attempts to destroy it, and it was found that very early or very late wheat could be grown quite uninjured by its ravages. In so far as Lower Canada was concerned, early wheat was out of the question, and the result of long and bitter experience shows, that a late sown hardy variety of spring wheat, one not liable to rust, is all that our sister Province can venture to cultivate.

In our more favoured portion of Canada, we have every reason to believe that our staple crop, the winter wheat—on the preservation of which would seem almost to hang our destiny as a country—may yet be saved, and we may be spared the tremendous loss that would fall upon us, had we to go through years of banishment to the wheat plant, such as have been the lot of our friends in the neighbouring state.

The fly makes its appearance above ground from the 1st to the 5th of July, two or three days after which time it rises to the level of the wheat ears, and deposits its egg; this, to come to maturity, must, on being hatched, find the grain in what is known as the milk state; for should the wheat be late, the young worm will soon perish from want of sustenance, or should the plant be sufficiently early for the grain to be formed, the worm can at its then age make no impression and fails to convert it into food. Most of these facts are well known where the fly has established its sway, but we are writing also for the information of those who inhabit a number of townships where it has not been seen, that they may from the first bend their energies to the right direction to counteract the mischievous operations of an enemy that seems determined, sooner or later, to have a look at every part of Canada.

The deductions we make from the foregoing are, that wheat, to escape the fly, must either be made to ripen late, and thereby incur a great risk of being rusted or grown, or some such culture must be adopted as will cause it to come into ear earlier than is usual with us. Early sowing, thorough draining, and good preparation in other ways, will sometimes effect this object, but they can not be depended on alone for the purpose of avoiding the fly,—*an early variety of winter wheat* used for seed, is, we believe, a sure means of making the crop perfectly safe from its ravages, *and from the effects of rust*.

We have for a long time past had this subject brought forcibly before us. The writer farmed till 1848 in Lower Canada, where the fly systematically devoured all but the late sown spring wheat; he has watched with anxiety its gradual progress from east to west, and has visited the state of New York at harvest time for the last four years, where he has seen, with alarm for Canada, the gradual discontinuance of attempts to raise winter wheat, and at last its final abandonment in the once famed valley of the Genesee. This year however, a circumstance came to our knowledge bearing very materially upon the subject under consideration, and seemed, if borne out by fact, to point out the antidote required. A man, it was said, had sown southern wheat in a northern latitude, and had been entirely successful in reaping a good crop therefrom. The writer proceeded to his farm in the northern part of the State of New York, where he found the crop, then being harvested, was as it had been described; he found that this was the *third* year of his having grown southern wheat, escaping each time both fly and rust, while his neigh-

bours, who from ordinary seed had tried to raise small patches of winter wheat, lost by the rust any thing not eaten by the fly. That he had sown on the 7th of September, which he considered to be too late, and that the sample was good, and such as a miller would like. The writer afterwards went through another field of wheat, raised from southern seed, it was situated at about forty miles from the first; it had entirely escaped the fly, as had also the crops of neighbours who had used the same kind of seed, of which not less than 300 bushels had been distributed in that vicinity. We have since heard from good authority of two other instances of farmers in other parts of New York having pursued a similar course with like success. As soon as we had satisfied ourselves of the advantages which the southern wheat as seed, possessed over other kinds, we lost no time in securing a few hundred bushels for this year's seeding, of a similar kind to what we had seen growing, and now have it on hand to supply those agriculturists who may agree with our estimate, of the vast importance the matter is to the farmers particularly, and to our country generally. The seed should be put in by the first of September, it is brought from Kentucky where it ripened the seventh of June, and (judging by the time the New York wheat ripened) will be fit to cut here by the 7th or 10th of July next. The wheat may be seen at our office, where every information concerning it will be cheerfully given. We are of opinion that quite a large breadth of land in New York will, this autumn, be sown with this variety, and we see no reason why Canada should wait till she lose a whole crop, before she consent to adopt a suggestion originated amongst our neighbours, whose ideas were perhaps sharpened by several years' light feeding on corn meal and buckwheat flour, as the best substitute they had for their missing "extra Genesee." We do not recommend our farmers to throw aside their old seed all at once, but we say put in a few acres of southern wheat, and give it a trial alongside of your own.

The operations of the fly in our part of the country have been very partial this year, if farmers will take a little trouble to compare dates of heading out and ripening, they will find that the earlier the fall wheat was, the less they would find of the fly about it. We know of one gentleman in Etobicoke who has a reasonable expectation of thrashing out at least fifty bushels of good wheat to the acre, while we could mention the name of another, whose farm is in Scarboro' (both adjoining townships to this), that will, out of a fine looking field, scarcely get his seed back, so severely has the fly treated it. Some are misled into thinking that because of there being so little of the midge this year, there may be none in time to come. The reason of so fortunate an escape as many are now experiencing, is the accidental circumstance of our having wheat earlier than usual, while the season on the whole has been cool and backward—this, in the natural course of events, may not occur again for years. That the fly is present with us is but too evident from the condition of late *winter*, and *early* spring wheats, and we have found *late ears* in an early field, full of the insect, while the other heads were free. Having some time before harvest personally examined the growing wheat between this and Thornhill, and over a good breadth of country east and west of Yonge street, we found abundant indications of fly in nine-tenths of the crop, but the grain there had advanced so far towards maturity before having been attacked, that but a comparatively trifling injury will be sustained, (we should estimate to an extent of not more than 20 per cent. of the whole). In Nelson and Nassagawega, we, on inspection, found the wheat to be a few days earlier, and almost free from insect, confirming what we have above advanced with regard to the important bearing the time of ripening has upon the preservation of the grain. And in conclusion we have to say, that whether our suggestion, for which we can not claim the merit of originality, be a benefit or not, farmers must prepare to see the whole of this fine wheat growing country covered, sooner or later, with what has hitherto proved the worst enemy that Canadian agriculture has ever contended with.

F. A. WHITNEY & Co.

Toronto, August 1st, 1859.

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SUMMER DRINKS.—SHERBET:—Eight ounces of carbonate of soda; six ounces of tartaric acid; two pounds of loaf sugar, finely powdered; three drahms of essence of lemon. Let the powders be very dry. Mix them intimately, and keep them for use in a wide-mouthed bottle, closely corked. Put two good-sized tea-spoonfuls into a tumbler; pour in half a pint of cold water, stir briskly and drink off.

# Agricultural Intelligence.

## GREAT TRIAL OF AGRICULTURAL MACHINES AND IMPLEMENTS AT MONTREAL.

We are glad to find that a general trial of Machines and Agricultural Implements, under the direction of the Board of Agriculture of Lower Canada, will take place at Montreal, on the 16th, 17th and 18th of the present month of August. Mechanics from Upper Canada and the United States are invited to compete, and gold, silver and bronze medals will be awarded to the makers of the best and most efficient implements. The trials will take place in the following order:—

FIRST SERIES.—PREPARATION OF THE SOIL.

*First Day.*—Ploughs for light soils, for all purposes—Ploughs for stiff soils, for all purposes—Ploughs for deep soiling, sod and subsoil ploughs—Subsoil ploughs, swivel ploughs—Gang ploughs, stubble-ploughs.

*Second Day.*—Heavy harrows for tenacious soils—Light harrows for gravelly or light soils—Clod-crushers—Light rollers—Scarifiers—Root extractors—Double mould board ploughs.

*Third Day.*—Beet, Carrot and Turnip Sowers—Bean and Maize Sowers—Grass seed Sowers—Horse Hoes—Potato, Carrot and Beet Diggers—Spades, Shovels, Hand Hoes, Pitch Forks, and other implements intended for the preparation of the soil. The same Jury will be charged with Land Drainage to be executed on the spot.

SECOND SERIES.—HARVEST.

*First and Second Days.*—Mowers—Mowers and Reapers combined.

*Third Day.*—Hay Spreaders—Horse Rakes—Scythes—Sickles—Hand Rakes—Hay Forks and other implements for harvesting.

THIRD SERIES.—PREPARATION OF FIELD PRODUCTION AND CATTLE FOOD.

*First and Second Days.*—Threshing Machines for one horse—Do. for two Horses or more—Horse Powers.

*Third Day.*—Fan Mills, Separators, Corn Crushers, Straw-cutters—Root-cutters—Cooking apparatus and other implements intended for the preparation of the products of the Farm and for Cattle food.

## HOPE FARMERS' CLUB.

PAPER ON SHEEP HUSBANDRY.

The Township of Hope Farmers' Club, met at the Guide Board, on Monday, for the purpose of discussing the subject of Sheep Husbandry. The attendance was very respectable. The President, Nathan Choate, Esq., occupied the chair. Mr. John Foott, President East Durham Agricultural Society, and a member of the Club, read an essay on Sheep Breeding, which will be found below. An animated discussion followed the reading of the paper.

Mr. President and Gentlemen,—I cannot help regretting that you have called on me to read an essay on Sheep Husbandry at this busy season of the year, for I have not been able to devote sufficient time and attention to the subject, to do it anything like justice. I know the subject is of great importance to us as Farmers, as well as to the country at large, and I fear that the paper which will be read to you will be but a poor attempt. However, when any task is assigned to me, you know I am not the person to flinch from it. I have endeavored to put a few hasty thoughts together, which I hope you will receive in all charity. The subject is too extensive to be condensed into a single essay. I shall, therefore, only introduce it, and confine my remarks to the *Breeding* of Sheep; and if I shall be spared to see the approaching winter, and it

should be your wish, the subject may be further gone into, taking up such points as the feeding, housing, and general management of sheep, together with some remarks on the bringing to market.

From the earliest ages of the world, the keeping of sheep has been a very interesting and profitable occupation to mankind. Abel was a keeper of sheep, and through succeeding generations the tending of sheep formed the employment of a large portion of the population of the earth. Thus, we find in the days of Abraham and Lot that their flocks and herds became so numerous that the land was not able to bear them; the Patriarchs, those especial favorites of Heaven, were all engaged in this noble and honorable employment, and it was not only the men that were engaged in it, but we find that the women also assisted in tending the flocks. We read in sacred history, that when Jacob went down to Padanaram, he met Rachel at the well, watering her father's sheep, for she kept them. David was taken from the sheep cots and anointed by the prophet to be King of Israel; and if you will read the Psalms you will find that the most sublime and expressive of them have direct reference to pastoral life.

It strikes me that those shepherds in ancient times were in great favor with God, for we find at the commencement of the Christian era, when the greatest event that ever took place in the world was about to happen, that shepherds were the first to be made acquainted with it; while keeping their flocks by night the glory of the Lord shone upon them.

As the world advances in civilization, so the keeping of sheep seems to advance in importance; it is only since the establishment of the Australian Colonies, that any great amount of wool has been imported into Europe—that country sends an immense quantity annually to the British market.

Before the finding of gold in Australia, wool was its most valuable export. The wool for the finer fabrics of cloth used to be obtained from Germany, and other countries of Europe. The Americans send considerable quantities of wool to the English markets. This branch of farming is increasing very much in the south of the American continent, the Western States, and Texas. A person writing from the latter place, gives a glowing account of his success in sheep farming. He says: "I have now about five thousand sheep, and all fine stock. Have realized over seventy-five per cent profit, per annum, on the investment since I have been here, which will do for bad times.—Flocks now in finer and healthier condition than ever. My good luck has lasted three years without intermission. If I can go on for three years more with the same success you'll hear the bells all the way to Boston."

Mr. Caird, speaking of Prairie farming in the West, says: "I drove to the farm of Mr. Connell; he is a practical man, who has all his life been engaged in farming. He left the old country in 1811; farmed in a small way in the State of New York, where he first settled, and moved thence to Illinois, seventeen years ago, took his small flock of merinos with him. They have been remarkably healthy; increased one-third every year, and his flock now numbers 25,000. His fleeces average four to five pounds each, and the wool sells for 1s 6d to 1s 8d per lb. The sheep are sent to the prairies in April; 1,200 are placed in charge of one shepherd, who tends them and supplies them with salt; they need no other food for six months. He brings them to his enclosed ground in winter, and gives them hay when they need it, and a little corn. His flocks have never suffered from any epidemic, but have been free from disease. His original flock increased one-fourth in weight and size after being brought from New York to this better soil. He prefers the Merino to the South Down for this climate and soil, and has found from trial that the Merinos yielded as much mutton, and far better wool. He imports pure Merino Rams from Germany and Spain to improve his flocks."

It will be perceived from those accounts, that Sheep Husbandry is becoming of greater importance, and keeping pace with the other improvements that are going on in the world. It is not many years since in those countries that have been last mentioned not a sheep was to be found.

Sheep are kept in some parts of the world to an extent that some people have but little idea of. When Prince Esterhazy was in England, some years ago, he paid a visit to the late Earl of Leicester, who was one of the largest farmers and stock-breeders in England. The Earl showed him a thousand ewes in one flock, and asked the Prince what he thought of that? The Prince replied, "My shepherds are more numerous than your sheep." Prince Esterhazy is said to possess a flock of 300,000 sheep, fed on his estates chiefly in Hungary. The superintendence and management of the flocks is conducted with the greatest regularity; monthly reports are sent in to a Board of Direc-

tors, who are appointed to superintend and give instructions to the different persons in charge of farms. Spanish Merino Rams have been sold in Hungary for £1,000 and upwards.

The French Government have expended large sums of money at different times in importing Sheep from Spain and other countries, to improve their flocks, hence the superiority of the French Merinos at the present time; these facts are mentioned to show that great importance is attached to the breeding and keeping of Sheep, almost in every country of the civilized world.

When Sheep are kept in such large numbers as I have spoken of, it is for the sake of the wool, not the mutton; the mutton is a secondary consideration, in fact, a matter of little importance; they are pastured on land that cost the owners but little or nothing, the greatest expense being the paying of shepherds to take charge of them.

Sheep are kept in pretty large numbers in some parts of England and Scotland; these take what we may term a middle stand, the wool and mutton both being very valuable. The Sheep are bred and pastured on land commonly known as Moor Lands, or Gorse Commons, or Heather; those lands are almost worthless but for the pasturing of Sheep; these are kept by the breeders until they are two or three years old, when they are sold to farmers and graziers who live in more favored localities, fatten on the rich pastures or turnips, and sold to the butcher, and go to feed the million. We then come to another description of Sheep, viz., the Long Wools; these are generally bred and fattened by the same individual, never changing hands until sold to the butcher. These Sheep form the minority, but I think it is by far the most interesting part of Sheep farming.

We could dispose of any quantity of that breed of Sheep. There is always a good demand for Wool at prices which may be considered remunerative: taking the average of the last few years, it will be found to be about 25 cents per lb., for coarse Wool. I have always found that the cash realized from the sale of Wool comes in quite opportunely, being at a time of the year when the Canadian farmer has very little else to dispose of. As to the class of Sheep best adapted to our country, I suppose there is a variety of opinion. Of the English breeds, we have the Leicesters, the Teeswater, Lincolns, Cheviots, and Southdowns, French and Spanish Merinos, and I suppose some others of the fine wool breeds. All these different kinds have their admirers and advocates. We have some of the old stock, the Canadian, but this class is getting small, most of the sheep throughout the country being crossed with one or other of the imported breeds.

We now come to a very important part of our subject, viz., the cross breeding of Sheep.

There are but few, comparatively speaking, of our Canadian farmers, who possess the means to import stock from England or other places where the pure breed can be obtained, and there is a less number still who have the disposition to do so, this being attended with great expense and risk of capital. But there is a great number of farmers who wish to improve their stock of Sheep by purchasing those animals which have been bred from Imported Stock. While it is beyond the means of some individuals to import, it is within the means of the majority of farmers to purchase those which have been bred from imported stock, especially male animals.

If an individual farmer thinks he cannot afford to pay 20, 30, or 40, or more dollars, for a Tup Sheep, he could join one or more of his neighbors to do so, as one Tup would serve from fifty to one hundred ewes.

Much has been spoken and written about crossing Merinos with Leicesters, the Native with Merinos, Southdowns and Merinos and a variety of crosses, but I confess that I have no faith in it. A very useful class of Sheep may be obtained, by crossing a Canadian Ewe with either a Leicester, Cotswold or Teeswater Ram. The produce of this cross will be a good plump carcase, with a fleece weighing five or six pounds of clean washed wool. I wish here to correct what I consider a prevailing error; that the first cross is the best. It's true, the change may be more apparent, but no certain degree of excellence can be obtained, unless the female is equally well bred with the male. This, however, is impossible to be obtained under present circumstances. We must endeavor by crossing and selecting, to improve our breed of Sheep, and this we may accomplish by care and attention. Our motto should be "Excelsior," still higher. At the end of every two years a Tup should be introduced into the Stock from another family of Sheep, so that there be no in and in breeding, and that should be a better one than you had for the past two years, if it can be got.

The following particular points demand attention; and as in cattle, the male has the greatest influence, it is proper to specify those requisites which are considered essential to a good Ram.

The head of a Ram, should be fine and small, his nostrils wide and expanded, his eyes prominent, and rather bold and daring; ears thin, his collar full from his breast and shoulders, but tapering all the way to where the neck and head join, which should be very fine and graceful, being perfectly free from any coarse leather hanging down; the shoulders broad and full, which must at the same time join so easily to the collar forward and chine backward, as to leave not the least hollow in either place; the mutton upon his arm, must come quite to the knee; his legs upright, with a fine bone, being equally clear from superfluous skin and course hairy wool; the breast broad and well formed, which will keep his fore legs at proper wideness; his chest full and deep, and instead of a hollow behind the shoulders, that part by some called the fore flank, should be quite full; the back and loins broad and flat and straight, from which the ribs should rise with a fine circular arch; his belly straight; the quarters long and full, with the mutton quite down to the hough, which should stand neither in nor out; his twist deep, wide and full, which with the broad breast will keep his fore legs open and upright; the whole body covered with a thin pelt and that with fine bright soft wool. The characteristic marks of the Ewes should be the same as those of the Ram. There is no breed of sheep equal to the Leicester as far as beauty and symmetrical form goes, also in coming to early maturity, but they are too delicate for our long and severe winters.

The Teeswater is far better adapted to Canada than the Leicester; but I have no objection to a dash of the Leicester with the Teeswater.

The Cotswold or New Oxfordshire Sheep is equally well adapted to Canada, and in some respects perhaps better, being of a very hardy constitution, growing to a large size, and and producing a splendid fleece of wool.

In the specimens of wool which I have shown you, you will perceive that there is considerable difference in the length and fineness of the staple, the weight of the fleece being about equal, the Teeswater growing so long and thin in some cases leaves the back of the Sheep quite bare, while the wool on the Cotswold grows in a thick compact mass, so that it is almost impossible for wet to penetrate through it; in this respect the Cotswold has the advantage over every other kind of long woolled sheep; perhaps they are not equal to the other breeds in coming to early maturity.

To be a successful breeder of Sheep, requires a great deal of patient perseverance, and attention to all its details, and a thorough acquaintance with the principles of breeding; the reason why so many individuals who have invested large sums of money in purchasing expensive animals have failed is the want of practical knowledge. One injudicious cross in a valuable flock will leave its mark for years. I will give you an illustration of this: for the last two years I have used two rams, the one a Cotswold, the other a Teeswater with a dash of Leicester; part of the ewes that had lambs by the Cotswold ram in 1858, have had lambs by the Teeswater ram in 1859; the type of the Cotswold is very plain in some of those. I do not say this was a bad cross, I mention it for illustration.

All females are very susceptible during the time of conception; perhaps the greatest instance we have of this is in the case of Jacob. I suppose you are all acquainted with this circumstance. I hope there is no one present but will acknowledge, that the hand of Divine Providence was at work in this instance. Yet it shows on the part of Jacob an intimate acquaintance with the nature and habits of breeding animals.

It was said by Mr. Burke that the man who made two blades of grass to grow where only one grew before was a benefactor to his country. We think that the man who can produce a breed of sheep that will yield a double amount of wool and mutton on a given quantity of food, where only half the quantity was produced before may also be considered a benefactor to his country.

Among the breeders of long wool sheep, the late Mr. Bakewell stands at the head of the list. He was the originator of those beautiful animals known as Leicester Sheep. There is a number of others who are entitled perhaps to almost as much credit as he is for following up his improvement. Mr. Jonas Webb, renowned as a Southdown breeder, is well known. He has done more than any other man to improve that valuable breed of Sheep.

There is another breed of Sheep which is gaining favour in England. I mean the

Cotswolds or New Oxfordshire. The Teeswater is an old and favorite breed, in some parts of England, and we think well adapted to Canada.

I shall now proceed to the subject of Sheep Husbandry as it concerns ourselves. The question has often been put to me, "is it profitable to keep sheep?" My answer to this question is in the affirmative. My opinion is, the keeping of sheep is profitable directly, and indirectly more profitable. When we take into consideration that the land of this Province, by a continued succession of cropping, becomes exhausted of its natural fertility, we ask ourselves, how is it to be prevented? what is the remedy? The answer is, keep stock to consume the produce on the premises, and return to the land that which you have taken from it. A fair proportion of this stock should be sheep. Sheep will convert an immense quantity of coarse fodder into valuable manure, if properly managed, and I think our farmers would find it more profitable to appropriate a greater portion of their farm to the feeding of sheep, than they now do, by subjecting the land to the continued operation of the plough, and the growing half crops of grain.

The last two years must surely have led farmers to see the advantage of paying more attention to stock farming. My opinion is, that under any circumstances a mixed husbandry is the safest, for it will not in any year entirely disappoint the hopes of the farmer. He cannot suffer so serious a loss as the farmer who depends altogether on his grain, should his grain be blighted or burnt up with drought. It is scarcely probable that a total destruction of live stock, wool, and grain would occur in one year. We need not be afraid of raising too many sheep, for our neighbours on the other side of the Lake are prepared to buy all we have to spare, since brother Jonathan has become so fond of English mutton. The 15th of November is a good time to put the tup with the ewes, the time of generation being about five calendar months, the lambs will come about the last two weeks of April, and the beginning of May. If the lambs come much earlier than this, the ewes require a great deal of attention and expensive feed, otherwise they will get low and out of condition.

In conclusion I may remark, that of the various animals given by a bountiful Providence for the benefit of man, there is none of greater utility than the sheep. The sheep affords us food and clothing; and in the manufacturing their wool, persons may be employed in productive labour, in the winters of Canada, when they would otherwise, perhaps, be unproductive consumers. Sheep should constitute a material part of a farmer's live stock and profits, in this Province, and I believe that nothing will pay the farmer better for kind and liberal treatment, than the sheep. When a man cultivates a farm or a field, the amount of produce is generally in ratio with the amount of labour bestowed, manure applied, and quality of seed sown; so it is with a flock of sheep, if you turn them on the roads in summer, and feed them on nothing but straw in the winter, it is unreasonable to expect that they will yield much in return.

I have not said anything about the qualities or the properties of the Merino sheep, because I know very little about them experimentally, but being natives of countries much milder than our own, such as France and Spain, I think they are not so well adapted to the long and severe winters of Canada, as the long-wooled sheep; they are not very handsome or attractive to look at, but they ought not to be despised on this account, for doubtless they are very useful on account of their wool, and I would remind my brother farmers, especially those belonging to the younger class, that we should be careful not to despise the useful for the sake of the beautiful.

If I have in reading this paper, shown anything like enthusiasm on the subject of Sheep Husbandry, I hope you will excuse it, for I assure you that I am much attached to it, and if circumstances demanded that I should occupy anything like a menial position on a farm, and I had my choice, it would be that of a shepherd.

But before I close, allow me to express a wish, that I hope the time is not far distant, when, instead of selling our wool to be carried out of our neighbourhood or out of the country, we shall sell it to be manufactured at Port Hope, and that the beautiful and powerful stream that runs through the town, which has been made tributary to the working of a great amount of machinery already, will be applied still further to yield the motive power required for a Woollen Factory.

I may state that a building is erected at Port Hope, possessing every convenience for the above purpose, as soon as a person or persons can be found who have the necessary capital and enterprise to work it.

# Horticultural.

Destructive Insect.—We are informed that throughout the western section of this country, great havoc is being made among fruit trees by a sort of worm or caterpillar, which has appeared in immense numbers on apple trees. They are devouring the leaves, and some orchards have been stripped already so that they are as bare of foliage as in mid winter. It is said that after this species of worm has visited a tree, it is useless to expect a yield of fruit the succeeding year, and if that statement is true, the prospects are gloomy enough for fruit in the places where the worm is operating.—Last year scarcely any apples were grown; this year what the frost did not touch will of course receive a blight, and the tree will not recover from the shock in time to yield next year.—*Rochester Democrat.*

Transplanting Evergreens.—The *London Gardener's Chronicle* describes the following method as promising great efficacy in reviving plants dried by having had their roots too long out of ground, and in ensuring their safe removal in late spring and summer, and as being especially fitted for evergreens when transplanted.

"Make a hole in the ground to contain about 20 gallons of water, and pour about 16 gallons into it, add to this about 20 lbs. of barnyard manure mixed with about the same quantity of fine rich soil. By working the mixture for a long time, and carefully, you reduce it to the consistence of whitewash. In this mixture steep the roots of your plants, just before putting them into the ground; the earth thrown after them into the hole sticks to the roots, which immediately begin to swell. At the very first movement of sap, rootlets appear through this coating, which gives them immediate manure, and not only brings on but secures the further formation of roots. Once fairly started, there is nothing more to fear." This reminds us of the plan for encrusting seeds with manure in order to give the seedlings a good start, recommended by an ingenious gentleman at New Orleans.—*Scientific American.*

Mice in Gardens.—As many persons prefer setting the common mouse-trap in their gardens, when annoyed with vermin, in preference to any other kind, I observed lately an instance when this was practised, and the traps were placed within small wood boxes, for the purpose of keeping the bait of oatmeal, or whatever may be used for this purpose, dry. Being protected from rain, arsenic might be used for this purpose with safety, if the apertures in the box for the admission of vermin were only large enough to admit mice and rats.—Nemo, *in Flor. Cab.*

Bones for Fruit Trees.—There is nothing like decaying bones for all sorts of fruit trees. They are perhaps best for pear trees, next for apples, and then for quinces; but are good for any kind of fruit unless it be cranberries, which seem to live and grow on little but air and water. If it is not convenient to reduce the bones into sulphuric acid, break them up small and place them about the roots of the tree.

To Keep Mildew from Gooseberries.—A correspondent of the Ohio *Farmer* recommends putting boards or shidgles on the ground under the gooseberry bushes, to keep the water away and the ground cool, and thus prevent the fruit from mildewing. Make the application early.

To Destroy Insects on Trees.—A solution of whale oil soap will destroy the numerous insects that infest trees and shrubbery at this season of the year. Dissolve the soap in warm water, making suds of medium strength, and sprinkle the leaves with a syringe. This specific is sure death to the caterpiller, miller, and an army of ravagers that destroy the foliage. Now is the time for its application.

Raspberry, Strawberry, Currant, or Orange Effervescing Draughts:—Take one quart of the juice of either of the above fruits; filter it, and boil it into a syrup with one pound of powdered loaf sugar. To this add one ounce and a half of tartaric acid. When cold put it into a bottle and keep it well corked. When required for use, fill a half pint tumbler three parts full of water, and add two table-spoonfuls of the syrup. Then stir in briskly a small teaspoonful of carbonate of soda, and a very delicious drink will be formed. The color may be improved by adding a very small portion of cochineal to the syrup at the time of boiling.

# Miscellaneous.

## ORNITHOLOGY.

BY S. P. FOWLER.

There is probably no branch of Natural Science that has enlisted so many ardent admirers as Ornithology. The readers of the *Farmer* are no doubt aware of the enthusiasm displayed by Wilson, Audubon and Nuttall. William Bartram, one of our earliest naturalists, was a great lover of our feathered tribes. He remarks, "birds are in general, social and benevolent creatures, intelligent, ingenious, volatile, active beings." J. P. Girard, the author of the Birds of Long Island, says, "it is his opinion that those who pass through life without stopping to admire the beauty, organization, melody or habits of birds, rob themselves of a very great share of the pleasures of existence. In spring when nature has recovered from the chilling blasts of winter, and again puts forth her rich foliage, what can be more delightful than to listen to the rich melody of our songsters, robed in their nuptial plumage, perched on the branch of the rich magnolia, arranging their splendid attire with studied care, as if jealous the swelling buds would put forth blossoms that would rival them in beauty?" John Ray, the father of British Natural History, in his work entitled "The Wisdom of God manifested in the Works of Creation," published in London in 1727, remarks, when speaking of birds, "by their melodious accents they gratify our ears; by their beautiful shapes and colors they delight our eyes; being very ornamental to the world, and rendering the country where the hedges and woods are full of them, very pleasant and cheerly, which without them would be no less lonely and melancholy; not to mention the exercise, diversion and recreation which some of them give us." We are informed by Montaga, that the venerable Dr. Latham, a distingushed English ornithologist, when in his ninety-first year, was as delighted in seeing a specimen of a new bird, as a boy on finding his first bird's nest!

The eccentric English ornithologist, Charles Waterton, has given us an amusing account of the means employed by his instructors to counteract in his boyhood the growing passion for the study of birds. How poorly they succeeded in their endeavors to destroy his enthusiasm, may be learned from his autobiography, and the reading of his admirable "Third Series on Natural History," published in 1857, when in his seventy-sixth year. In his account of his life and adventures, he says, "when I was not quite eight years old I had managed to climb upon the roof of an outhouse, and had got to a starling's nest under one of the slates. Had my foot slipped, I should have been in as bad a plight as was poor Ophelia in the willow tree, when the 'envious sliver broke.' The ancient housekeeper, mentioned in the account of the barn owl, had cast her rambling eye upon me; seeing the danger I was in, she went and fetched a piece of gingerbread, with which she lured me down, and she seized me as though I had been a malefactor. At nine years old, I was sent to school in the north of England, where literature had scarcely any effect upon me, although it was duly administered in large doses, by a very scientific hand; but I made vast proficiency in the art of finding birds' nests. It was judged necessary by the master of the school to repress this inordinate relish for ornithological architecture, which, in his estimation, could be productive of no good. Accordingly, the birch rod was brought to bear upon me when occasion offered; but the warm application of it, in lieu of effacing my ruling passion, did but tend to render it more distinct and clear. Thus are bright colors in crockery ware made permanent by the action of fire; thus is dough turned into crust by submitting it to the oven's heat.

To my mind, language used by modern naturalists, expressive of their great love for birds, appears tame when compared with the enthusiasm discovered by some of the old authors. The most enthusistic language we remember to have read upon the importance, or rather pleasure, to be derived from the knowledge of birds, was recorded in a work originally written in High German, in rollicking style, by Peter Kolben, in 1731, in his preface to the "Natural History of the Cape of Good Hope;" wherein he says. "The beauty, the variety and music of the feathered nations are enchanting delights; and their instincts and habits often nobly instructive and amusing. I cannot help adding a reflection or two more here with regard to the feathered world, those beautiful, merry nations, which seem designed by Heaven as a kind of soothers and softeners of

the chagrin and melancholy of human life, and a sort of counterbalance for the dull, the sour and the gloomy parts of the animal creation. What eye is not struck with those lovely nations of singers! What ear is not ravished with charms of their melody! We say, after the French, that he who has no taste for music, has no soul. I must confess, I think he has a very strange one, or that it is hampered under a strange sort of organization, who is not sensible to the melody of the feathered nations; and can people have a relish for the music of those beautiful warblers, and not a curiosity to look into their history; and not a desire to know their make, their instincts and their economy; the knowledge of which is both profitable and entertaining? The variety of their abodes, habits and instincts, their various make, music and embellishments, are matters of the most delightful amusement. Nor are the preying, the mute or the unmusical part of them unprovided with matter of very noble and very useful contemplation." What writer in modern times, has so earnestly and enthusiastically set forth the claims of birds upon our attention, as did this old author, more than a century and a quarter ago?—*New England Farmer.*

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## THE IRISH POTATO.

How sweet to the taste is the Irish potato,
As memory awakens the thought of the plant!
Its dark verdant vine-top and beautiful blossom,
In pleasing transition my memory haunt.
Aye! thought of the root in profusion once growing
On the broad sunny hill slope adjoining the mill;
At the homestead, how many we raised there is no knowing,
For some were but *small ones*, and *few in the hill*.
The mealy potato, the Irish potato,
The thin-skinned potato that grew on the hill.

That delectable plant I would praise while I'm able;
For often, at noon, when returned from the field,
I found it superior to all on the table,
The best-flavored edible nature could yield.
With what eager appetite, sharpened by labour,
I plied knife and fork with a hearty good will!
Alas! there are none of the old-fashioned flavour—
None like the "real Simons" that grew on the hill.
The mealy potato, the Irish potato,
The thin-skinned potato that grew on the hill.

How prime from the full-heapen dish to receive it,
As, poised on my fork, it ascends to my mouth!
No appeal to the palate could tempt me to leave it,
Though affected by "rot" or a long summer's drouth.
And now, far removed from that loved situation,
Where I used to partake of the root to my fill,
Fancy fain would revert to my father's plantation,
And sigh for the "kidneys" that grew on the hill.
The mealy potato, the Irish potato,
The thin-skinned potato that grew on the hill.

Canadian Manufactures.—The *Leader* announces that the Grand Trunk Railway Company have entered into a contract with a new firm, to be established in Toronto, for the re-manufacture, for a term of years, of all their old rails. There is, we believe, only one establishment of the kind in America, and that which is to carry on its operations there will probably expend in wages a larger amount than any existing manufactory in the Province. The capital necessary to start this new establishment, will not be less than $4,000,000; and it is calculated that it will give regular employment to 400 or 500 hands, and pay from $800 to 1,000 a day in wages. It will be the first large manufactory ever established in Toronto, at the same time that it will be one of the largest, if not the largest, in the Province.

## AGRICULTURE AND HORTICULTURE—THE TRUE FRIENDS.

BY MRS. LYDIA H. SIGOURNEY.

"They leave no sting in the heart of memory—no stain on the wing of time."—*Hon. Marshal P. Wilder.*

Brown Ceres, one day, with Pomona was meeting
'Neath autumn's spiriting smile;
So, giving each other a sisterly greeting,
They sate down to gossip awhile.

"I hope you're quite well, dear, this elegant weather;"
"How charming the country!" they said;
"And how do you prosper," both speaking together,
"With regard to your business and trade?"

"Look, where the rude thorn bush and bramble were springing,
With fruitage the apple tree bends;
The scythe of the mower at sunrise is swinging,
And the song of the reaper ascends.

"Let us walk hand in hand, for no obstacle caring,
Till vines o'er the mountains shall grow;
Its suit of green velvet the brown heath be wearing,
And deserts with plenty o'erflow.

"The gold in its mine, with excitement and wonder,
May summon an emigrant band,
And the chariot of Mars trample on, in its thunder,
But we're the true strength of the land.

"For us no lorn wife in her cottage is grieving;
Earth welcomes us both in her prime;
No sting in the bosom of memory we're leaving,
To stain on the pinion of time."

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MILK WHICH DOES NOT YIELD BUTTER, AND THE MEANS TO REMEDY IT.—The author calls the attention of those who are chiefly interested in such cases, in which there is no disease of the mammary gland nor loss of milk, but a want of oleaginous matters in the fluid. In the causes of this deficiency of butter making quality, he concludes that there are *two* principal ones, viz.: idiosyncrasy and alimentation; but there is another which cannot be so easily defined, and which occurs in animals that are well kept, and whose milk has been previously rich in butter. It is to these that the remedy is principally directed. The remedy consists in giving the animal two ounces of the sulphuret of antimony, with three ounces of coriander seeds, powdered and well mixed. This is to be given as a soft bolus, and followed by a draught composed of half a pint of vinegar, a pint of water, and a handful of common salt, for three successive mornings, on an empty stomach.

The remedy, according to the author, rarely fails, and the milk produced some days after its exhibition is found to be richer in cream. The first churning yields a larger quantity of butter, but the second and the third are still more satisfactory in their results.

A letter from a farmer states that he had fourteen cows in full milk, from which he obtained very little butter, and that of a bad quality. Guided by the statements of M. Deneubourg, which had appeared in the *Annales Veterinaries*, he had separately tested the milk of his cows, and found that the bad quality of it was owing to one cow only, and that the milk of the others yielded good and abundant butter. It was, therefore, clearly established that the loss he had so long sustained was to be attributed to this cow only. He at once administered the remedy recommended by M. Deneubourg, which effected a cure.—*Veternarian.*

## IMPORTANT TO MILKMEN.

We can see no reason why milkmen everywhere will persist in the habit of shipping such large quantities of water to our large cities, when water is so abundant and at such cheap rates. Why not evaporate the water, and send the milk to the cities in nice cakes, which can be dissolved to suit the users' taste and fancy.

Solidified milk is now manufactured purely and successfully in Duchess Country, N. Y.; and for the benefit of the milkmen who are so largely engaged in the transportation of water, we will give here a description of the process of solidification.

The works consist of a large brick building, situated in a beautiful valley, seven miles from the nearest railroad station, in the centre of a milk-producing district. The basement is occupied by a large boiler and steam-engine; on the first floor are the evaporating pans; in the second story are the ventilators, drying, packing, and store-rooms. The milk is collected from the farm-houses around twice a day, as soon as practicable after milking, and kept in a cool cellar under the factory. At first the milk is warmed by steam, in a large tin cylinder, up to 170° F., and a quantity of white sugar dissolved in it. Second, the milk is placed in large shallow pans, two inches deep; these pans are all kept at the temperature of 170° by means of a water bath under them. The pans are covered with a wooden structure, through which a current of air is drawn by the ventilators above. The vapour is thus carried away as soon as formed, and does not oppose evaporation. To prevent any portion of the milk from becoming solid too soon, and adhering to the pan, the whole mass is constantly stirred by steam power. After about five hours, the milk has become a sticky paste; the mechanical stirrer is removed, and its place supplied by a girl with a knife in one hand and a roller in the other, who prevents any portion of the paste from adhering to the pan, crushing the lumps to powder. After half an hour of this work, the mass has become a dry mellow, white powder. All that remains to be done, is to keep it for a few hours in the drying room, and to pack it in tin boxes with a lid cover.

The composition of cow's milk is, for 100 parts of milk: water 87; butter, 3; cheese, 4½; sugar of milk, 5; salts, ½. The quantity of sugar added to the milk is 10 parts for 100 of milk, consequently one pound of solidified milk will make five of cow's milk already sugared; and make ten or more of such milk as is sold in the streets of this metropolis. But it is not necessary to dilute it in so much water, and those who can afford the luxury put the dry powder in their coffee.

Solidified milk keeps for months, simply by taking care not to leave it in unusually damp places. It has been carried to the Pole by Dr. Kane, and to the Equator on many vessels. It is used in the sick room in its solid form, when much nutriment is wanted in a small bulk, and it is congenial to the stomach.—*Scientific American.*

# Editorial Notices, &c.

State of the Crops, &c.—For the last few weeks the accounts of the state of the crops, from one end of the Province to the other, have been upon the whole, of a very encouraging character. In some localities, where the wheat was forward, the severe frosts the beginning of June, did considerable damage, but it was fortunately restricted to small areas; and the midge, except in some few places, does not appear to have done any very serious or extensive mischief. As the grain is generally very plump and heavy, we may fairly calculate on harvesting a full average crop of wheat, of a superior quality. The spring grains are generally good, and no crop in Upper Canada at least, can be said to be short, except hay, which in many places is very light. From the United States and Europe the accounts are also highly favorable. In England, we learn from private letter (date 20th July) that severe thunder-storms had badly laid the crops in many of the southern counties, and that the potato disease, was unmistakeably showing itself. In Canada, the very early potatoes were much damaged by the frosts early in June, but the later sorts escaped, and have a very growing and healthy appearance. As the weather continues favorable for harvest operations, and the maturity of the later crops, there is every reason to hope that our farmers will experience a profitable year, and that business in general, will, as a consequence, speedily revive.

We have just returned (August 1st,) from a short tour west, and our observations fully sustain the preceding statements. We had the pleasure of spending a day with an

old friend and patron of agriculture and improved cattle, Hon. Adam Fergusson, of Woodhill, whose interest in these pursuits, notwithstanding advancing years, continues unabated. Mr. Fergusson has still a small herd of Shorthorns, in whose selection and breeding he has shown great care and judgment. The drought had made his pastures quite bare; but with plenty of shade and good water, his stock is in a thriving condition; thus evincing, under unfavorable circumstances, the strong tendency of well-bred Shorthorns to keep in flesh. Mr. F. has several bull-calves and yearling heifers to dispose of, and we are happy to be informed that he intends to exhibit them, with his admirable two-year old bull, *Athelbert*, at the approaching Provincial Show at Kingston. His resemblance to his sire, *Duke of Cambridge*, is very striking. The well-known *Duchess* blood largely pervades this herd, and it must be a satisfaction to purchasers to be assured that the animals have been kept in the ordinary way, and not stimulated by artificial pampering.

Provincial Exhibition at Kingston.—We learn that the Local Committee are satisfactorily progressing with the arrangements, and that the prospect of a successful show grows every day more encouraging. The premiums are numerous, and in many cases munificent; and the Committee are erecting a number of stalls, covered pens, &c., for horses and cattle, of *a permanent character*, such as no previous exhibition has possessed. The owners, therefore, of valuable stock may now reckon, be the weather what it may, of having them, at a very trifling cost, perfectly protected from wet and cold. Premium-lists and blank forms of entry, have been sent to Agricultural Societies, Mechanics' Institutes, &c., in the Province; and may always be obtained from the Secretary of the Association, Toronto; or the Secretaries of the Local Committee, Kingston.

Approaching Fair in Toronto.—It will be seen by advertisement on the cover of our present number, that the Corporation of Toronto have determined on holding Periodical Fairs for the sale of Live Stock, grain, and agricultural produce generally, on the Exhibition Grounds in the western part of the city; the first will take place during the present month. This we regard as an important step in the right direction. Fairs and markets in the old country have, for centuries, been regarded as essential to the efficient carrying on of country business, and their introduction to this country, wherever fairly tried and persevered in, has been attended with satisfactory results. At this fair farmers will have an opportunity of exchanging or purchasing seed wheat, grown on different soils, and at considerable distances; an object of no small importance. To butchers, cattle dealers, and country traders generally, this occasion will afford great facilities for transacting business; the site and buildings are most eligible and convenient, and we trust that the enterprise will meet with a hearty and liberal support.

Important Sale of Stock.—We have much pleasure in directing attention to the advertisement of Mr. F. W. Stone's third annual sale of imported and pure bred stock. Mr. Stone has acquired the well earned reputation of being one of the most enterprising and successful importers and breeders on the continent. He has just made a sale (on 25th July) of twenty-five sheep to go to California, viz: eleven Cotswold rams, six Cotswold ewes, five Southdown rams and three Southdown ewes. This is the second lot of sheep sold by Mr. Stone this year to go to California.

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Home Manufactures.—We were shown the other day a very fine sample of factory cotton wove at the manufactory of Messrs. Nutty & Woodward, Thorold. In comparison with English and American goods of the same class, by the side of which it was placed, it bore very creditable contrast, it was remarkably fine and even in its texture, clear of specks, and altogether a first class article. It is sold at about 15 per cent less than imported goods. Our merchants should note this; for we are persuaded that an inspection of such "home products" is only necessary to secure for the enterprising factors a steady demand, at the same time building up native works and giving employment to artisans and capital that would otherwise be consumed abroad.—*St. Catharines' Constitutional.*

Rhubarb Tarts.—Peel and slice the rhubarb, sweeten to taste, and fix as a gooseberry tart. They are very delicious.

THE

# Canadian Agriculturist,

AND

## JOURNAL OF THE BOARD OF AGRICULTURE

OF UPPER CANADA.

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## THE PROVINCIAL EXHIBITION.

We recently had the pleasure of inspecting the grounds and erections now in course of improvement or construction; and without doubt the accommodation provided at Kingston both for convenience, comfort and permanency, far surpasses any thing hitherto attempted in this Province, and, perhaps, on this continent. The Crystal Palace has been thoroughly cleaned and repainted, and a large Mechanics' Hall, of a permanent character, is in the course of erection. The southern boundary of the grounds consists of upwards of one hundred permanent horse boxes, with shingled roof, all of which will no doubt be occupied by choice and valuable animals. A large number of cattle stalls, sheep pens, &c., is in the course of completion, which will be found by the owners of superior stock of great convenience. "These were pronounced by the members of the Board, from Toronto and Cobourg, the most complete and extensive ever provided at a Provincial exhibition, and deserved compliments were paid to the President of the Association, who is also chairman of the building committee, for the liberality and care evinced in the proposed arrangements. The Crystal Palace has been retouched throughout with bright and gay colors, which harmonize well with the foliage of the trees planted outside the building and with the adjacent landscape. The emblazonments of the different municipalities, the heraldic ornaments, and some specimens of stained glass executed by Chance, of Birmingham, add to the beauty of the interior. A very large, handsome dome with beautifully wrought windows has been placed over the transept, and the exterior has been colored with light and graceful tints. Accommodation for the Musical Choir will be provided in the transept, and everything is being done to render the building a fit repository for the treasures of art and the productions of industry."

His Excellency the Governor General and Lady Head, and Lieut. General Sir W. F. Williams, the hero of Kars and Commander of the Forces in British North America, have expressed their intention of attending the Exhibition, and several other distinguished persons from both sections of the Province and adjacent Provinces, and also from the United States, will doubtless do the same.

Professor Lawson of the University of Queen's College, and the Rev. Mr. Mulkins, have undertaken to deliver free lectures on subjects of scientific and practical interest to the farmers of Canada, during two evenings of the show week. Musical entertainments have also been arranged, and it is expected that Mons. LaMountain, the celebrated æronaut, will make a balloon ascent from Kingston at the time of the show, which promises to afford a large amount both of rational amusement as well as much practical instruction to the many thousands that will pay it a visit. The Board has selected the requisite number of Judges in the different departments from the lists of names supplied by agricultural societies, each of whom has been apprised of his appointment by circular.

We observe that the Local Committee have unanimously passed a resolution, regretting and repudiating the construction put by a portion of the public press on the object of the late dinner given in Kingston to the city member, the Hon. Attorney General West. Let us hope that this most undesirable discussion will now cease, and that all parties will continue, as heretofore, to unite in sustaining the operations and patriotic objects of the Provincial Association.

Intending Exhibiters should recollect that their entries for competition must be made before or on the 10th inst., except of Horticultural products and ladies' work. Blank forms of entry and prize lists may be had of the Secretaries of Agricultural Societies and Mechanics' Institutes, throughout the Province.

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## WHEAT CULTURE IN CANADA.

The raising of this invaluable cereal has of late years been attended, more or less, with anxiety and disappointment in several sections of the Province, and the farmer will do well to consider carefully the principal conditions upon which his success must be based. It is clearly impossible to give full and specific instructions in this important matter, so as to meet the varieties of soil and climate, and other varying circumstances, which fall within the observation and experience of every practical man. All that is now proposed is to draw attention briefly to a few important facts and principles of a general nature that in practice are frequently too much overlooked.

After the most careful examination into the nature and causes which affect the raising of wheat in this country, we are led to the conclusion that the majority of failures are clearly attributable to the neglect of the ordinary principles of good husbandry, and are consequently more or less within the reach of human control. It is a notorious fact that in many parts of this continent, naturally adapted to the growth of this cereal, its culture has been so frequently repeated without the proper observance of those essential conditions, the thorough cleaning and manuring of the land, that the most stinted returns—sometimes not even amounting to the seed sown—have been the consequence.

In our older settled districts it is every year becoming more apparent that to secure a profitable crop of wheat, something more is required than was formerly necessary in the virgin state of our lands. As cultivation progresses and attains age its operations become more complete and the art of good husbandry makes larger demands on the care, observation and judgment of its followers. For example, the greater part of our soils on this continent, for several years after having been redeemed from the forest or the prairie, will yield frequent and abundant crops of wheat with the most ordinary culture. But it is the certain history of these soils after a few years under such treatment, that their yield gradually becomes less, till at length their cultivation becomes absolutely impossible. Such

lands become in the popular phrase *exhausted*, a term highly significant and scientifically correct; and they cannot be brought back to their original productive condition, without restoring to them in some shape or other, those fertilizing ingredients, of which, by repeatedly cropping without manuring, they have been deprived. Again, one sometimes sees the attempt to raise wheat on soils naturally unsuited to its growth; and which can never be made to produce an average crop, without resorting to such expensive expedients as to make the business unprofitable. On such soils, in so extensive a country as this, wheat should not be attempted, they can always be put to a better use.

As the season for sowing wheat has again come round, it is now too late to remedy any negligence or defects that may exist in the preparation of the soil, which should have received such repeated ploughing, &c., as to render it clean and friable. The direct application of strong putrescent manures, such as farm yard dung, &c., to wheat, is often found in this country to stimulate too much the growth of straw. without a corresponding filling of the ear; such manures are more economically applied to the previous crop, particularly to roots. Wheat also requires the soil to be dry and sound; upon low, wet lands its cultivation can never be made profitable. It is now too late to underdrain, but in some situations much can be done by properly ridging the land and making surface furrows, so as to carry off freely the heavy rains of Autumn and Spring.—A little extra attention and labor, will, in this way, frequently relieve considerable areas of stagnant, and consequently injurious water. If matters of this kind were more attended to at the time of sowing, we should hear far less about the ravages of rust, midge, &c.

As to the *time* of sowing no absolute specific rule can be laid down, since so many varying conditions are found in practice to obtain. The nature and fertility (natural and artificial) of soils, situation, level, climate, and the varieties of wheat sown, are each and all important considerations in determining this question. Very early sowing has often been attended by the ravages of the Hessian fly, and other evils resulting from a too luxuriant autumn growth; while late sowing, especially on poor soils and in exposed cold situations, prevent the young plant getting sufficient root hold of the ground before winter, and exposes it particularly to the attacks of the midge the following summer. Experience has shown generally that from the beginning to the middle of September, is the best and safest time for sowing the ordinary kinds of wheat in most sections of this Province.

The communication in our last number of Messrs. Whitney & Co., has no doubt, ere this received the attention of our readers. The early Kentucky seed wheat will be tried this season by several farmers in different parts of the Province; and there is good ground for hope, founded on analogy and, as yet, a limited experience, that these varieties by ripening early will escape the destructive attack of the fly.

Drilling when practicable, is strongly to be recommended. It has many advantages over broad-casting, requiring less seed, and depositing the same at a uniform depth; thus preventing, to some extent, the destructive effects of heaving out by frost. The quantity of seed per acre must depend mainly on the state of the soil and the time of sowing; one bushel, if drilled early in good land, will in most cases be sufficient, but when sown broad-cast and on poorer soils, and later in the season, double that quantity will be required.

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A Brick Machine introduced into Russia by Mr. Clayton, of London, Eng., is capable, it is said, of producing ten millions of bricks per annum. He has got some special privileges from the Russian government and is now establishing large works in that country.

# Correspondence.

## IDLE HOURS—LIVE FENCES, &c.

Messrs. Editors,—Time is a talent, and one that is much wasted, and in this extreme warm weather there are some hours at midday that I may use for my own amusement at the present, and perhaps the hours of idleness may be conducive to some good some future day. Might it not be useful to write some practical notes on the best mode of raising live fences? The subject has been discussed in clubs, but not to my satisfaction. Some practical man should take up the subject, and write what he knows about it, and, if in his power, he might apply some of the theories in vogue, experimentally, and so prove their worth. I shall try to commit to paper what I know on the subject, and as I am now very old, some one may come in just where I leave off, and so save himself the labour of going over experiments to no purpose. For these last seven years I have been trying experiments with some plants which I thought might succeed, and seeing the apple recommended I had a good chance, and made a trial. They don't stand cutting; they are short lived, their foliage is too large, and they are too expensive. Plums have also been tried by me, and they will do alone, but much better as a mixture in beech and privet. I even would doubt of them for farm fencing. The osage orange, if it could be made to stand our climate, would do for farm fencing, but it is not able to stand our severe seasons, nor can a hedge be raised much earlier of them than of the hawthorn. The Canadian thorns are hard to get from seed, and after they are procured their foliage is too large, especially the cockspur. Most of the other varieties that I have become acquainted with are not prickly enough, at least not so prickly as the hawthorn. I shall therefore recommend the culture of the British, or white, or hawthorn, and begin by saying, procure, if possible, acclimated seed, viz: seed from plants that have been raised in this country. As my method of raising the plants is within the compass of every farmer's means, I shall describe the mode in as few words as possible, because farmers generally do not like long puffing, except on wheat, or horses, although the day will come when it will be dung and green crops, cattle, &c. Every farmer grows at least *one rod of onions;* then prepare the land well for them, and before sowing lay off your bed in lines of two feet apart, draw a drill with the whole breadth of the face of a common hoe, say two inches deep; sow the haws into this drill so thick that they will touch each other, patting them well down with the back of a spade, or lay a board lengthways of the drill, and tread them well down, cover them up and sow your onion seed as if no haws were there—thus you will be able to keep the place clean of weeds, and have your crop of onions to boot. About one peck of haws will be sufficient to sow a rod. Clean the land well in the fall after removing the onions, and in the spring you will see the thorns coming through thick, but not so thick as you sowed the seed, as some take two or more years to come up. Now, say you sow in 1860, in the spring of 1861 they will begin to come up, and in 1862 you may draw up all you can handle conveniently, and plant them on a piece of well prepared land in rows, one foot apart, and about three or four inches apart in the row, leaving the seed bed for another year, or perhaps two years, as the case may be. The seed bed being in rows will not be difficult to keep clean, and in 1863 you may plant another piece of equal dimensions. Thus much for the seed and nursery beds. I prefer leaving the plants at least two years in the nursery bed, to acquire strength and get well rooted, that when planted out for good they may grow rapidly. Some will make shoots of eighteen or twenty inches the first year after planting for good; and I would prefer plants of from *three* to *six* years to plants of from *one* to *three* years, and the hawthorn will grow transplanted at almost any age.

My method of planting is as follows:—Prepare the site well with a spade; no necessity to raise a place for the plants. Lay them in on the level, one after another, at six inches apart, each plant headed down to within six inches of its surface growth, when the top of the second will be over the root of the first, and the third over the root of the second, and so on *ad infinitum*. I prefer heading down the first year's growth, whatever it may have been, to six inches, and the second to about twelve inches, which will leave your hedge about eighteen inches high to commence its third year's growth, and if kept free from weeds, and the brousing of sheep and cattle, the cause is won.

I had got thus far with my hours of idleness, when two friends called, both of them

inimical to live fences, and we argued the thing as to cost and so on, when I volunteered to read this to them. Just at the time a Kentish man popped in, and gave us a description of his mode of planting thorns in Kent, so here it is,—"We plant," he said, "two rows, about four inches apart, and the second row of plants opposite to the space in the first row, and six inches apart in each row. They grow together, and draw each other up quicker, and when three feet high we *splash* them, in this way: We put a row of stakes between the two rows of thorn, and make a cut about six inches from the ground in the thorn, not quite through; then lay it down, wrapping its head in amongst the stakes, this makes them grow thick at the bottom."

Another plan is to build a turf face, say two feet high, then lay the plants slanting, with their heads over the face, and cut the tops off in a line with the face—this I have from a Berwickshire man, who talks loud of hedges.

And yet another plan, procure the seed and twist them up in a rope of straw, and bury the rope lengthwise where you want to have the fence, and I may add, exercise patience for at least ten years.

By this may be seen the different modes of live fence raising, which have come under the notice of one individual, and as to how many more he may hear of or see 'tis not easy to calculate. Another mode which is economical, to say the least of it, is to take plants four feet high, and plant them in a line four feet apart. Lay the whole plant down and cover him over with earth. Thus far for one day's hours of idleness.

Now, Mr. Editor, the foregoing was not written for publication; but two or three of the readers of your very useful journal—which I am sorry to say is not so much used in this neighbourhood as it ought to be—insisted to have something local. I declined, being a man of no tail. If I were possessed of say 3,000 acres, or say one cypher less, and were a cypher myself, I might have my *tail grow*. But as I come under the designation of John Legget's clever fellow, I beg you to withhold my name from this if you should deign to publish it. Moreover, every man in our neighbourhood, after reading it, if you should publish, can with ease point to the author. I shall give you a definition of John Legget's clever fellow:—Two of us were saying to each other on a certain day, that such an one was a clever fellow, when Legget drew near, and as soon as he knew whom we were talking of, exclaimed, "He a clever fellow? how can he be a clever fellow? he never was worth twenty pounds in his life. Now, I come under this definition, and of less worth than twenty pounds, because *I am not worth coming to see*. And yet, Sir, I do not despair. Men are still living near, who twenty or more years since, when, on a small farm, I was in the habit of growing from three to four acres of turnips and carrots, looked with as much apathy at me then as a *turnip grower*, as they do now *as a live fence grower*. And these same men are now hoeing their five and more acres of turnips, and even saving their own seed; and I doubt not that in less time than has elapsed since then, that some of these men, or their descendants, will be growing their own *thorns*.

Yours, &c.,

J. W.

Raglan, July 14, 1859.

# Agricultural Intelligence.

## TRIAL OF MACHINES AND AGRICULTURAL IMPLEMENTS IN LOWER CANADA.

The grand trial of Machines and Agricultural Implements, under the direction of the Board of Agriculture of Lower Canada, commenced yesterday, (Tuesday 16th August,) on Mr. Logan's farm, in the vicinity of this city. The weather was highly favorable. The number of entries, however, was not very great, and there were not above two or three hundred spectators on the ground, both circumstances indicating a less degree of interest in the affair than we had anticipated. This, we think, was owing, not so much to any want of liberality on the part of the Board in offering prizes, as to the want of sufficient publicity being given to the event. The exhibitors were chiefly from Montreal and its immediate neighborhood, the number of machines from Upper Canada and the United States being very limited.

The following is a list of the Judges:—

First Series—Comprising ploughs, harrows, and other implements for the preparation of the soil—Messrs. Dostaler, Alexander, W. Berczy, W. Boa, L. Desrosiers, O. Perron.

Second Series—Comprising mowers, and reapers, hay-spreaders, hay-forks and other implements for harvesting—Major Campbell, Messrs. DeBlois, McKellar, McDougall, P. C. L. Dubois, L. Delorme, Armand.

Third Series—Comprising threshing machines, straw cutters and other implements for the preparation of the products of the farm and for cattle food—Colonel Thomson, Messrs. Tetu, O. E. Casgrain, J. B. Daoust, G. Boucherville.

Of ploughs there were 31 entries; of harrows, 8; of mowers and reapers, 15; of threshing machines, 8; besides a number of entries of other important implements.—In the list of parties who sent in implements for competition we observed the names of Messrs. B. P. Paige & Co., Montreal; Messrs. W. Johnson & Co., Montreal; Messrs. Norse, Mason & Co., Worcester, U. S.; W. Stalter, Lancaster, C. W.; M. Moody, Terrebonne; W. A. Woods, Hoosick Falls, N. Y.; G. Laviolette, Napierville; George Henny, N. H.; B. Cole, Quebec; F. M. F. Ossaye, Montreal; John Helm, Port Hope, C. W.; Messrs. A. S. Whiting & Co., Oshawa, C. W., &c., &c.

The proceedings commenced with a trial of Mowers in a field of fine clover. Four machines were entered by Messrs. B. P. Paige & Co., M. Moody, W. A. Woods, and Messrs. Norse, Mason, & Co. Messrs. Paige's machine broke down through an accident, before the trial was half over. Each of the other machines cut an acre of clover. Messrs. Norse's Mower did the work in 39 minutes; weight 485lbs; average draught or power required to drag it through the grass, 250 lbs; width of swath, 5 feet; cost of machine at the place where made, $90. Mr. Wood's machine did the work in 49 minutes, from which 10 minutes had to be deducted for lost time; weight, 514 lbs; width of swath, 4 feet; draught, 175 lbs; price, $80. Mr. Moody's did the work in 51½ minutes, having been delayed by an accident to the gearing; weight, 600 lbs; draught, 240 lbs; width of swath, 4 feet 6 inches; price, $100 for Mower; $120 for combined Mower and Reaper. The decision of the Judges was deferred.

The next trial was of Reapers in a field of barley, which was not in a very favorable state for fairly testing the merits of the different machines, owing to the nature of the ground, and a portion of the grain being laid and matted. Mr. Wood's combined reaper and mower did the task allotted to it in 33½ minutes; Mr. Helm's reaper and self-raker in 36 minutes. Mr. M. Moody had a machine entered for this trial, but it broke down and was withdrawn before the trial closed.

There was also a trial of ploughs, the particulars of which we reserve to be given with the account of to-day's proceedings.

SECOND DAY.

The trial of Implements was again proceeded with yesterday, Wednesday, 17th. The day was very pleasant, and there was considerable animation visible. The first part of the day's business was the trial of Paige's Reaping Machine, which broke down on the previous day. It did pretty fair work. The same jury afterwards tried an ingenious machine for sorting hay, manufactured by Messrs. Norse, Mason & Co., of Boston. It gave very general satisfaction, and from its novelty attracted considerable notice.—It sells for $50. They then proceeded to test three rakes. One of them from the factory of Mr. Moody, Terrebonne, was much admired, being much simpler in construction than the others, was very cheap and did excellent work. The trial of Ploughs was then made, and this was then followed by the trial of Harrows, Rollers, Scarifiers, and other implements, several of which gave great satisfaction. The trial of Threshing Machines was very interesting. There were only two competitors—Johnson of Montreal, and Moody of Terrebonne. They had each two-horse machines and one-horse machines. The competition consisted in the two-horse machines, threshing each 100 sheaves. After a very satisfactory trial it was considered that Moody's machine was superior to Johnson's, in point of time consumed, and the quantity of grain yielded. There was much less difference between the one-horse machines—the time was the same, and the difference in the quantity of grain yielded was not much. The Judges then proceeded to give in their reports—a process which monopolized the rest of the day.

THIRD DAY.

Yesterday, the 18th, the concluding day of the competition, was chiefly devoted to the trial of three stump extractors, on the farm of F. M. Ossaye, Petite Cote, St. Michel. One of the machines was manufactured from a model furnished by M. Ossaye, one by George Kenny, Milford, New Hampshire, the other by B. Cole, of Quebec. The several Juries assembled in the morning at Logan's farm, and about eleven o'clock proceeded to M. Ossaye's, when the trial commenced. The machine invented by M. Ossaye was first tried, and gave very general satisfaction. This machine is of a new construction, having two levers of 14 feet long, acting upon an axeltree, worked by two small pinion wheels. It is mounted upon a wooden frame, and carried through the field on a sort of sleigh, by two horses. The levers are worked by two men, the action being perpendicular, and the operation of raising the stump being rapidly and well performed. Stumps that would take about half-a-days's hard work of one man to clear away, were taken up in less than two mintues.

The next machine tried was that of Mr. Cole, which was also on the principle of the lever, working perpendicularly, but different in detail from the other. It exhibited great power, but worked very slowly. The third was Kenny's, which is constructed on the capstan principle, and working horizontally, drawing out the stumps consequently by lateral pressure. It also exhibited great power, but was not all to be compared with Ossaye's for handy working. The first machine took up over a dozen stumps, the others only one each. The trial lasted from 11 o'clock until a quarter past two. The Judges for this trial were selected from class No. 3, and were Dr. Tache, G.B.Daoust, E. Casgrain, and M. Tetu, of St. Thomas, C. E.

PRIZE LIST.

The preparation of the full Prize List, with the remarks of the Judges upon the various implements exhibited, and their adaptability to Canadian farming or the reverse, has been entrusted to W. McDougall, Esq., M. P.-P., and will not be ready for some weeks. The following summary will, however, give the result of the competition:—

CLASS NO. I.

*Ploughs for stiff soils*—1st, James Jeffrey, of Petite Cote, Montreal; 2nd, James Paterson, Montreal.

*Ploughs for light soils*—1st, James Jeffrey; 2nd, William Evans.

*Heavy Harrows*—1st, James Paterson; 2d, William Stalter, Lancaster, C. W.

*Scarifiers*—1st, Joseph Meddlemes, Jr., St. Laurent.

*Horse Hoes*—1st, James Paterson; 2d, James Jeffery.

*Double Mould Boards*—1st, James Paterson; 2d, William Evans; 3d, Jas. Jeffrey.

*Light Harrows*—1st, James Paterson.

*Clod Crushers*—1st, James Jeffrey.

*Swivel Ploughs*—1st, William Evans.

*Universal Plough*—1st, Norse, Mason & Co.

The Judges in this class reported summarily, in regard, first, to the still soil ploughs, that Mr. Jeffrey's gave a main draught of 325 lbs., and was considered superior to the other by the quality of work performed. The second prize plough had a draught of 375 lbs., and the work was inferior. In light soil ploughs, Mr. Jeffrey's had a draught of 300 lbs., working six metres by nine. Messrs. Evans, Norse, Mason & Co's plough, 72½, gave equal draught, but the work being flatter it received the second prize. In harrows, the one exhibited by Mr. Paterson was considered the best they could have for Canada. It is considered the best harrow in England, the model having been copied by Mr. Paterson, from an English harrow. In regard to clod crushers, the Judges regretted that Mr. Moody did not exhibit his crosskill, instead of the one he exhibited as they considered it far superior to the one exhibited by Mr. Paterson. But still his implement, on account of its small cost and the simplicity of its construction, was thought worthy of a second prize. The scarifier exhibited by Mr. Meddlemes, was considered an excellent and effective implement, but far too dear to be thought of by the generallity of farmers.

CLASS II.

*Reapers*—1st, John Helm, Jr., Port Hope, C. W.; 2d, B. P. Paige & Co., Mont'l.

*Mowers*—1st, W. A. Wood & Co., Hoosick Falls, N. Y.; 2d, Norse, Mason & Co., Boston; 3d, M. Moody, Terrebonne, C. E.

*Combined Machines*—1st, B. P. Paige & Co.; 2d, W. A. Wood & Co.; 3d, M. Moody.

*Horse Rakes*—1st, D. D. Dewitt, Dewittville; 2d, M. Moody.

*Patent Thistle Fork for Barley and Straw*—1st, Jacob Hoffman, Camden East, C. W.,; 2d, George Lake, Camden, C. W.

*Hand Forks*—1st, A. S. Whiting & Co., Oshawa, C. W.; 2d, W. Evans, Montreal.

The Judges report generally that the trial was unsatisfactory in two or three respects. The ground was unsuitable for reapers. The furrows were deep, and there were many of them, and the crop of barley was short and much laid, and grassy at the bottom. There was but one reaper tried—a combined machine, being entered as a reaper, received the second prize. The competition in the several classes was not so extensive as the Jury would have been glad to see. The mowers were excellent, but in the other classes defects were observed which will be pointed out in the detailed report. A collection of small implements—hay-forks, dung-forks, forks, spades, hoes, &c.,—was exhibited by Whiting & Co., of Oshawa, the form, material and finish of which could hardly be excelled.

CLASS III.

*Threshing Machines*—1st, Mr. Moody, 2 horse; 2d, Mr. Johnson, do. Single horse—1st, Mr. Moody; 2d, Mr. Johnson.

*Straw Cutters*—1st, Mr. Evans, for J. H. Wilson of Harrisburg; 2d, Melcher & Co., Boston.

*Root Cutters*—1st, W. Evans.

*Agricultural Furnaces*—1st, W. Evans, N. M. & Co.

*Clover Thrashing Machines*—1st, Mr. Moody.

A quantity of clover was passed through this machine, but in consequence of there being no means of separating the seeds from the chaff, no result could be given. But as the machine seemed to be efficient, the judges awarded Mr. Moody a first prize.—The same judges who were present at the trial of the stump machines yesterday, including Colonel Thomson, were the judges of this class. In regard to the threshing machines, they report that Mr. Moody's threshing machine threshed in 10½ minutes from 100 sheaves 3 bushels, 9½ lbs. of wheat, and Mr. Johnson's machine in 18¼ minutes, from the same number of sheaves, threshed 2 bushels, 29½ lbs., showing that there was a difference of 20 lbs., in the quantity threshed, but the time occupied by Mr. Johnson's machine being nearly double that of Moody's, the gold medal was awarded to Mr. Moody.

The competition has now terminated, and the judges generally have been very much gratified with the results. It is decidedly the best that has taken place in Lower Canada as to its practical results and testing the comparative value of the implements exhibited. There is no doubt that when another of a similar sort takes place there will be a much larger display of implements, and a much better turn out of practical agriculturists from various parts of the country, as means will be taken to make it better known than were adopted in the present instance. The collection of implements exhibited by Norse, Mason & Co., was splendid for every quality or nature of soil, and every sort of work to be performed on a farm. Many of these implements have not yet been introduced amongst us, our farmers being somewhat tenacious of their Scotch ploughs and other heavy implements that have found favor in the old country, even although the low price at which many of these lighter implements can be obtained, is somewhat of a consideration. Such exhibitions, however, have the effect of bringing practical men into contact with those varied models, and will undoubtedly tend to their introduction, wherever it is considered judicious to do so.

Flour from France.—We were informed recently of the arrival at Montreal of a cargo of French flour, which was said to be of a very superior quality. We learnt also that Mr. Merritt, of St. Catherines, had received a cargo of French wheat, which he intended to manufacture into flour at his own mills. It is a somewhat remarkable state of things that it should be found profitable to import wheat from Europe to feed the inhabitants of these heretofore fertile wheat producing countries. The scarcity here was no doubt principally owing to the late unfavorable seasons and to the depredations of the wheat fly, but unless a better system of agriculture be soon introduced, with thorough drainage, root crops, cattle feeding, manuring and greater attention to other products than merely wheat, the deficiency of the latter crop will soon be not an occasional, but an ordinary occurrence.

## ANNUAL EXHIBITION OF THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND AT WARWICK.

This great national show of Live Stock and Agricultural Implements came off in the environs of the ancient town of Warwick, situated in the very centre of England, during the second week of July, and was, upon the whole, highly distinguished for its success. We subjoin extracts from the very elaborate report of the *Mark Lane Express*, and also a communication from a young Canadian correspondent, who favored us with some remarks on the Society's Show at Chester, last year.

The Warwick Show will be thus written on the record. It was a good average meeting, without anything of special importance to mark its history. The Society, to be sure, still continues to increase in influence, and in some departments the entries were, as usual, "greater than was ever known before." This was more particularly the case with the implements, which were never previously seen in such numbers, and had never been of such general excellence. But even here there was little or no novelty. The steam plough has long been a standing dish at these entertainments; although, perhaps, to people who do not go much from home it is yet the great treat of the day. Certainly in the trial fields, Fowler's plough and Burgess and Key's new mower had clearly the call. We do not speak here so much of the judges as the common body of spectators, and it is seldom we remember any machinery in work that has recommended itself so strongly to the public.

In some other divisions of both the stock and the implement departments, the interest and excitement were not so much over what was exhibited as what was done with it. Seldom have precedent and established reputation been so thoroughly upset. It was impossible to turn any way, but you met with some great man discomfited. Jonas Webb had been beaten for Southdows; the Booths had got the worst of the Shorthorns; and the Howards not as hitherto *all* the best of the ploughs. The office of a judge, we can answer for, is not always the most agreeable of duties; but never did we hear men in authority so fiercely canvassed as some of those at Warwick. Still, it must not be supposed that this discussion would apply equally to the three instances we have given. On the contrary, the Babraham flock was fairly beaten by the best Southdown sheep—the Duke of Richmond's shearling—ever seen in a show-yard. Then, again, the performance of Hornsby's new plough—and finding such a plough in their name was a novelty—was extraordinary for its excellence, and he would have been a bold man who could have stood by the work and disputed the award. But the decrees over the high-bred cattle were by no means so quietly submitted to. One exhibitor, indeed —Mr. Booth, of Warlaby—has gone so far as to lodge a protest over the placing of the shorthorn heifers in calf. He does this, we believe, on the ground that his Queen of the Isles is not even noticed, and as he maintains she is clearly the best of the class, he demands to know why the Judges have disqualified her. Of course, any such objection as this can never hold water, or every other exhibitor would be making one. It is, however, only fair to say that the majority of the public also regarded this as a mistake, almost every one preferring the Queen to the second prize, and some went so far as to draw a comparison in her favour against the first. But we hardly go to this. Colonel Towneley's is a beautiful heifer, with a lovely head, a wonderfully good line along the back, and unquestionably much the better behind. It is just here that the Queen of the Isles fails; but she is truly magnificent in many other of her points; and it will always be a curious query how she was entirely passed over? Those learned in the lore will remember that Mr. Booth's was the first prize yearling heifer at Chester.

There is no denying that the Shorthorn Judges at Warwick went on something of a new principle. They would not have mere pedigree or quality answer for everything, but stood out a little more for meat, size, and substance, with symmetry. There were, too, many sound practical men ready to uphold them in what they did. In plain truth, the fashion of thing was manifestly threatening to carry itself a little too far. We were getting to delicate narrow animals, that promised soon to neither milk, breed, nor feed. There was many such an illustration, on the Warwick Show ground; and the courage of the Judges here must lead to a little wholesome correction. Admitting the two-year-old heifer case to have been an error, there was a vast deal of wild talk on other decisions, that could have been attributable to nothing but prejudice. There were some, for example, who would have denied Mr. Stratton his honours with Matchless the Fourth, the second at Chester, the first here, and now grown into as fine a cow as ever entered

a show-yard. She is a capital roan in colour, has a good head, wonderful chest and brisket, and altogether an extraordinary forehand; while she is beautifully fleshed, and almost as commendable for her general symmetry. In a word, we think no animal was ever more fairly placed, although she did beat, in addition to those named in the prized and commended list, Mr. Douglas's renowned Ringlet, and one or two more equally well-bred ones.

But the strength of the Shorthorns, and we might perhaps go on to say of the whole Show, was in the two-year-old and yearling heifers. It is significant of their uniform goodness to note the award of the judges, who commended everything they saw here. And all the best men were here too—Booth, Colonel Towneley, Douglas of Athelstaneford, Stratton, Grundy, Captain Gunter, Marjoribanks, Noel Hill, Sir Charles Tempest, and Jonas Webb, with comparatively new men, like Mr. Robinson of Clifton, and Mr. Fowler of Henlow. It has been already intimated that the selection from such stock was made by no means altogether upon previous precedent. This was not only remarkable amongst the two-year-olds, but quite as strikingly with the yearlings, some of which had already come together.

It has been a common observation of ours for some time past that the Durham cows show far better than the male animals, and this was essentially so at Warwick. Seldom has there been such a mixed lot of bulls at a national meeting. If a visitor had stopped here he would have gone back with no very high opinion of the continued improvement of the improved Shorthorn. The best aged bull, to begin with, and a long way the best of his class, was thought to be nothing beyond a useful animal, although a far better-looking beast than Lord Feversham's first prize at Chester. His symmetry is much more perfect; he has a good head, with a kindly expression about it, stands very well before, and has a rare back and capital thighs. Still there is a manifest want of style about "Radford," and he is about the worst-coloured animal we ever saw: a kind of creamy trout-spotted one, by courtesy called "a roan." The second to him is the Cobham bull Marmaduke, who has plainly seen his best day. He stands well before, but is anything but level, and threatens altogether to get worse instead of better. The second prize bull at Chester, Marc Antony, and the first prize two-year-old of that meeting, Lord Hill's Hetman, were both of them commended here; but neither is of quite first-class character. In fact, as is commonly the case with them, the pride of the Shorthorns again was with the younger animals, and two of these commanded a great deal of earnest attention. They were Colonel Towneley's Royal Butterfly, an own brother to Master Butterfly, and Royal Turk, a yearling, the property of Mr. Ambler. It might be a question with some which was the better of the two, although the market evinced no doubt about it. The present representative of the family name and honours has already reached his brother's repute. An offer of twelve hundred guineas on the part of some Australian gentlemen for Royal Butterfly was refused, while Royal Turk was sold to Mr. Langstone for three hundred and fifty. The latter, it must be observed, was not shown amongst the Shorthorns, but in the "cattle best adapted for dairy purposes." This is something of a distinction without a difference, as nearly all the animals entered were well-bred Shorthorns, some of the pairs of cows being amongst the grandest, and certainly at the same time most useful-looking stock on the ground. It was curious to see how soon Royal Turk was found out here, even in such disguise, while Butterfly's more prominent position amongst his own order commanded for him one continual crowd of admirers. He is certainly a most taking animal, with as true and handsome a bull's head as poet could wish to sing of, or painter to sketch.

If we consider the locality in which they were exhibited, the Herefords can hardly be said to have realized what was expected of them. But nothing is more uncertain than a show of this kind of stock, and nothing more uneven than the present one. There appears to be an under-current of feeling amongst the breeders, as to what the type of a Hereford should be. In many herds the original grand size has been departed from, and a neater, closer standing beast substituted. The latter would now appear to have the call. Mr. Hill's bull, the first in his class at Chester, and the best aged bull here, has nevertheless, not much improved. He is a compact, short-legged, broad-standing beast, but very dark in his colour, rather patchy, and decidedly bad about the rumps. Some of those behind him had their partizans, while the most liked of all was a very handsome young bull of the Prince Consort's, that deservedly stood as the first of his set. The second prize two-year-old, a very well-formed beast, is noticeable as having been calved in the yard at the Salisbury show, and hence his name. It struck us the

cows and heifers evinced more of the true, fine character of the Hereford than the males; and some of them were really perfect specimens of their kind. Still neither these nor the Devons had anything like the popularity of the Shorthorn, notwithstanding that the latter were especially well represented. Mr. Quartly, Mr. Turner, Mr. Merson, and His Royal Highness the Prince Consort, sent some patterns of purity, and these were well backed by Mr. Farthing, Mr. Umbers, and others. Mr. Farthing's prize bull is of great length, and Mr. Quartly's particularly handsome. An old favourite of ours, however, Mr. Merson's Prince of Wales, could get no further than a commendation; but the gem of the Barnstaple show, the Prince's yearling, distinguished herself as we anticipated. She was only beaten for first place by a yet more handsome heifer than herself—another of the Quartly's. But His Royal Highness may honestly plume himself on his Devon herd, bred with remarkable care and judgment, and showing perhaps even to more genuine advantage at the Norfolk Farm than even on the course at Warwick. In the cow classes, the awards recently made in the West-country were partially corrected, and with little question as to the wisdom so exercised by the superior court. Still there was no desire shown to pass over good useful properties when duly combined with the orthodox points of that most attractive looking and truly symmetrical animal—the North Devon.

If the Warwick show be remarkable for any one feature in which it surpasses the previous meetings of the Society, it is in the entries of riding horses. Taking the general strength of stallions, mares, and hunters, they have never been so good. This, no doubt, may in some measure be accounted for, from our being here in the very centre of a famous hunting country; but, still, in proof of the increasing interest evinced for such classes, many of those exhibited were sent from long distances. The section opened well with as good looking a thorough-bred horse for getting hunters as the Royal gatherings have ever yet attracted. Hunting Horn, to begin with, is by far the best-bred horse of the lot; but he combines with this the most extraordinary power, size, and substance. In fact, he was so big as a young one, that he never could be properly prepared, and even now at five years old he can hardly be said to have quite formed or furnished. Should he only go on right, and fine a little about the shoulder, he must in a year or two's time develop into a magnificent animal. When we remember such prize stallions as Spencer, Ravenhill, and Loutherbourg, we may well feel satisfied with such a successor to them as Hunting Horn. The thorough-bred horse award at Chester last year was "corrected" the very next week in Yorkshire; but we should think a new trial need hardly be granted here. Still there were two or three well-known horses sent, such as The Ugly Buck, Sprig of Shillelagh, and Sir Peter Laurie. The last-named of these is not so great a horse as one would expect to see; and The Ugly Buck, light and very racing-looking, has the credit of getting better hunting stock than he would quite promise to do. Three or four very coarse, evidently half-bred animals were also shown in this class, but of course unnoticed. The hunting mares, as a lot, were better; and there were some half-dozen of them especially good. The prize in the first instance was awarded to perhaps the finest mare for such a purpose ever seen on a show-ground. She is now the property of Mr. Fowler, of Aylesbury, but was sold two or three years since for no less than nine hundred guineas to carry the Empress of the French. Her right eye, however, went, either from disease or accident, and she re-crossed the Channel. The veterinary surgeons attributing its loss to the former cause, refused to pass her; although up to the end of the week "Empress" appeared in the list as the first prize mare. We were bold enough to inquire of one of these inspectors how it was she was first on the list and nowhere in the show itself. His reply was, that "it was simply a clerical error," which is a fine Delphic oracle kind of answer, no doubt, though what it really means we have not even now the slightest possible idea. If we stood in Mr. Fowler's place we should distinctly request to know why the veterinary surgeons disqualified his entry after the judges had passed her. Such a protest is a very different kind of objection to that of Mr. Booth. Blindness may or may not be hereditary, and we will not venture to say which it is in this case; but nine times out of ten it is not, and at any rate Mr. Fowler is surely entitled to know "the reason why." The famous stallion Defence was blind for many years, but few of his stock, that we are aware of, took this malady from him. A thorough-bred brood mare, the property of a near relative of our own, was stone blind when put to the stud; but she threw nearly a dozen foals that were trained, hunted, and ridden as hacks, without one thus failing. Horses go blind from infinite causes—over feeding, bad stabling, hard work, and all

kinds of things. But it yet remains to be proved that any of these are hereditary, or, in other words, disqualifying reasons. Mr. Fowler distinctly asserts his mare went wrong from an accident; the veterinary surgeons, on the other hand, trace this to primitive disease. The question is, which of the two is the real fact. Of course "a clerical error" is no answer at all, especially as one of the judges assured us they had picked her out as the prize mare. Even more than this, the other eye might "go" from mere sympathy, and at any rate the point is worthy of some more definite explanation than that conveyed in "a clerical error."

No less than four-and-twenty were nominated for the hunter prize, and the judges commended every one of them. In a word, the Society is making a wonderful advance in this way, and there really was hardly a horse shown but his owner might have fairly expected to win with him. By some happy instinct the judges again got hold of the best-bred one—by Drayton, dam by Steamer—the very pedigree for a hunter, and a horse of rare, grand style, with a beautiful flat leg, over seven inches round below the knee. Lord Berners stood second with Barbara, and then we had Mr. Booth highly commended for a very clever Barnton horse, and Mr. Formby and Mr. Arkwright as greatly distinguished. Many leant also to a bright bay of Mr. Berry Congreve's, as "about as good as anything," and we hear he was sold during the week at a long figure. The ponies did not muster so strong, but they were all good. Mr. Cresswell Wall sent two that we noted at the time as in favour at Barnstaple; a very pretty one of Mr. Sullivan's came from Dublin, and Sir Piers Mostyn, as at Chester, headed the class with that handsome galloway, Young Bantam. But it was hardly fair to compare him with that little bit of perfection, the brown Monmouthshire pony at his side. The hack mares were indifferent, and, on some showing we cannot understand, the judges appeared to select the most under-bred hairy-heeled of them all. However, quite enough was done at Warwick to prove that the Royal Agricultural Society can accomplish that which the Council once declared they never could—a creditable or even excellent entry of riding horses. Moreover, be it ever remembered that it is decidedly one of the most popular sights of the show.

The agricultural horses were not so generally commendable, and hardly in any way up to the mark of some former anniversaries. Neither of the two prized all-aged stallions were really first-class horses; and the judges had some difficulty in deciding which was the better of them. The preference, on a division, was given to a smart, compact Lincoln horse, with the strong drawback of indifferent action. Mr. Clayden's Suffolk has already been distinguished as the best yearling at Chelmsford and the best two-year-old at Salisbury. He is a famous topped horse, of great size, but with something very like a malformation in one of his feet. Although so far so good, the Suffolk men fancied something better of their sort had been passed over, but the breed took a much better standing than it often has done at the Royal Meeting. Mr. Frost, Mr. Wrench, Mr. Bedham, and Mr. Barthropp sent some of those famous mares we have had so much to say of lately; and Mr. Crisp had his "Emperor," which did get a prize at Chester, and that all his friends declared should have had one now. He is grown into a grand colt, and is sure to be heard of again. It is remarkable, as showing the strength of one particular strain, that the best mare, the second mare, and the best two-year-old filly were all by the same horse, "Royal Duke." There was a ready market for the chestnuts even in this land of blacks, browns, and greys; and Mr. Frost sold his mare for 120 guineas, Mr. Wrench his two-year-old for 90 guineas, and Mr. Barthropp a lot, of a mare, her foal, and a two-year-old, for something over two hundred, to Lord Shrewsbury. Neither of the Cretingham horses was entered. The "Hero," indeed, has shown temper this season, and Mr. Rarey was to reason with him at the Alhambra on Saturday last, but we did not get up in time to witness their interview. A Suffolk on his marrowbones would be something of a sensation for the West-end class!

Judged by their own merits, and altogether independent of any peculiar fancy or fashion, the two best stallions for agricultural purposes were the first prize dray horse and Mr. Holland's bay two-year-old. The latter distinguished himself at the West of England meeting last month, when he spoke of him as "promising to furnish out into a great fine horse;" a notion which his visible improvement since then goes more and more to confirm. The dray horse, England's Glory, got by England's Glory, and he himself the sire of England's Glories, an echo that must lead to confusion sooner or later, still bears marks of the mishap he met with last year on his way to Chester. But he shows remarkably well. Lively and active, of immense power and substance, short

on the leg and very true in his symmetery, it is pardonable to find his owner challenging all the world with him. There were some other good Shire horses, as the prize lists will show, and one or two of no great style, so adorned with the prize medals of previous years, that people wondered where or how long since they gained them. The black horse of the Midlands must be going out of repute, at any rate he was very scantily represented here, and it is seldom at a national show we have had the Clydesdales in such little force. The Prince Consort sent one of his own breeding, which took a second prize, a neatish, close-made filly, by the Chelmsford Britain, that we recognized at once the other day from his clever action, as he took his morning walk at bush harrow, near the Shaw Farm. The Warwick local premiums for cart horses were noticeable for a few capital working pairs, some of them wonderfully well matched.

The strength of the Sheep Show centered clearly in the short-wools. Notwithstanding that Mr. Sanday and Mr. Pawlett lent their aid to the Leicesters, the class was not much fancied, and the theaves particularly were objected to, as light and delicate, and deficient in that great recommendation to an Englishman—a good leg of mutton. With still some good rams to recover them, the Leicesters were, as a whole, below the average of many former meetings. The Southdowns, on the contrary, were never so good. As we have already intimated, the Duke of Richmond was declared to have the best type of a Down ram that has ever been exhibited. We have long maintained there is a purity of character about his Grace's flock which scarcely any other can demonstrate. Whether this be attributable to care, climate, or soil, we cannot say: perhaps to a combination of the three. Great care has clearly been evinced in crossing with some of the picked of Mr. Jonas Webb's rams, and the result is that the latter for the time at least is well beaten. In the Shearling Ram class Mr. Webb entered no less than eleven and the Duke but four. The award, however, was never, we believe, for a moment disputed, and the shearling Southdown vied with Royal Butterfly, the four-year-old hunter, and Mr. Harrison's pig, for the great honours of the occasion. The Babraham entry did not extend beyond this, and amongst the all-aged rams and the ewes, the Duke had consequently an easy victory. Mr. Rigden, in fact, was the only man who came at all near him; while Lord Walsingham, who seems to depend quite as much on feeding as breeding, had in such company not "the ghost of a chance." The Short-wools "not Southdowns" were in their collected force yet more remarkable. In truth, there never was such a lot—either for so many or so good. There were Oxford Downs, West Country Downs, Shropshire Downs, and Hampshire Downs—each variety with some especial characteristics of its own; but all with those great points for the farmer—plenty of mutton and wool. The judges here, again, commended whole classes; but they went for choice to the West Country, and great was the admiration over Mr. Humphrey's entries. The Oxfords stood next, with Messrs. Druce, Bryan, and Charles Howard, asserting the rights of this novus homo. The Shropshires had an especial class to themselves, and generally a good even show of them, but hardly evincing that advance which has latterly been expected. The Cotswolds had, as usual, all the call of the other long-wools, with Mr. Garne, Mr. Fletcher, and Mr. Walker this year in the ascendant. But the breed did not command that attention it would have done in other localities. What people dwelt on here in the way of varieties was not so much "other long-wools" as "other short wools."

In no division was the improvement more decided than in this year's exhibition of pigs. Almost the only objection now is to the sub-division made amongst them, so indefinite as to be little more than a mere matter of fancy. One man calls his a "large," and his neighbor his litter "a small breed," and as scarcely any one could say which was which, the distinction passes accordingly. Surely a much better way would be to classify them as blacks and whites. However, a good pig, like a good horse, can hardly be of a bad color, and whites, and Berkshires, and blacks and whites, and Essex and Suffolks alternated in the ascendant. As usual, there were some lamentably over-fed, and one immense white beast died early on the Wednesday. We wonder if it ever happened that a judge disqualified a pig for being over-fed? However, the judges here were evidently well satisfied with what they saw. They commended generally every class of Berkshires brought before them, and they did as much for some other sorts in the local list. There was more meat and less offal. The big pigs especially, were the "cleanest" they had seen, and Mr. Harrison's white boar was a very marvel of size and quality. He was two feet four and a half across the shoulder; he was six feet five in girth round behind the shoulder; he was smart and active when

you had him up; and, as we have declared already, he was one of the sights of the day. The Berkshires were, again, never more "evenly" good, and never better, and the Prince Consort sent the prettiest and most perfect white Windsors His Royal Highness has ever yet bred. There was no poultry show, and certainly nobody seemed to miss it more than Mr. Harrison Weir.

We must ask some of our own staff to complete the picture, and to say how the implement makers fared, the judges worked, the stewards acted, and the public behaved. The latter, if anything, were almost a little too much interested, and the manner in which at times they got in the way was something to try the most even-tempered men, the state of the thermometer and all things considered. In the trials of the ploughs and mowers more particularly, the mere lookers-on were wonderfully active. They advised the judges, they counselled the exhibiters, and they defied the stewards with great resolution and authority. But still there was something to be offered in extenuation. They really did take a part in what was going on, as they proved before the week was out. Nevere before were there such good customers. Never yet did "the trade" do so good a business. From Mr. Fowler and his steam-plough down to swing-gate and pulper makers, many were fairly sold out. The trials resulted in some two or three very noticeable conclusions. Fowler's plough, for one, was indisputably the favorite in both its work and machinery against Smith's cultivator, and the public went generally with the decision. Then, Burgess and Key's mower confirmed the reputation that had preceded its arrival here. It did its work well, easily, and with a certain simplicity in its action that are sure to tell. We have already referred to "the surprise" occasioned by Messrs. Hornsby's success with their new plough. It will be found that they stand first for both the light and the heavy land; but that the Howards still keep their position intact as the makers of the famous general purpose plough.—Hornsby has something of a novelty in the construction of his implement, which is detailed elsewhere, but was confided to a Bedfordshire man to carry it out. The ploughman Browne was originally with the Duke of Bedford, at Woburn, and subsequently we believe with the Messrs. Howard. He has profited by his education, and been champion in many an All England match. The only wonder is how he was allowed to leave his own neighborhood. The Ransomes' second and second over again went to assert something, a distinction without a difference, and as we said last week, much of it was from the first a hard struggle between Grantham, Bedford, and Ispwich.

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*From our special Correspondent.*

BRIDGWORTH, SALOP, July 19, 1859.

* * * * The ground where the Royal Agricultural Society held their great Annual Exhibition, is situated on the west side of the very ancient borough of Warwick, on a piece of land of very large extent, known as the Race Course—this being the ground which is kept by this town for the "Isthmian games." The Show-yard is an enclosed area containing twenty-six acres; the transformation of this large piece of ground, from an extensive green sward, where, in the summer evenings, the youthful community are in the habit of devoting their leisure hours to the manly game of cricket, to a town of canvass, inhabited by all that is relative to the noble science of agriculture, is a remarkable event, which will be long held in memory by the inhabitants of Warwick. Near to the Show ground is a hill overlooking the vast extent of interesting and beautiful country on the one side, and the borough with its remarkable earth, ancient churches, and interesting public buildings, on the other. In the interior of the Show-yard the walking powers of the visitor are considerably taxed. Shed after shed stretches itself away from one side of the yard to the other, and more time is required than is allowed, to walk the entire length of every shed, and to examine thoroughly all that is contained within them; of this, perhaps, you will be better convinced when I state that the implements alone, (not including machinery at work) occupied thirty-four sheds, eighty-four yards long by twenty feet wide; besides these, and an almost equal number occupied by stock, there are many side-sheds for seeds, poultry, cheese, and extras.

The competition in the cattle department was exceedingly severe. The first, second and third prizes were of course, the great object of attraction. In the general stock department, the high fame of the exhibition was well maintained, yet, I am inclined to think that the show of horses was not equal to that of last year at the ancient town of Chester. Amongst the cattle, the Short-horns seemed to attract most attention. The

rich variety of their color, and their fine symmetrical form, accounts, perhaps, for the popular admiration they generally excite. This breed was represented by no fewer than 163 animals, and most of them perfect types of the short-horn. The show of Herefords was also very fine, they possessed an evenness of growth, and had none of those heavy protuberances of fat which many used to admire. The Devons were indifferently represented as to numbers, but many beautiful specimens were exhibited, particularly those shown by Prince Albert, which were entitled to the distinction known as "commended." His Royal Highness the Prince Consort, obtained a first prize in the bull-calf class. Sheep mustered strongly, and like the cattle, showed marks of steady and general improvement. In the Southdowns, whose characteristics are a fine quality of meat, and short close wool, the celebrated breeder, Mr. Jonas Webb, was defeated by the Duke of Richmond. The show of pigs was equally fine. The display of agricultural implements and machinery was a source of great attraction. Agricultural machinery, like all other machinery, has bent itself to the law of progress and improvement. The agricultural classes, unwilling at first to acknowledge the mighty power of steam, and the scientific skill of man as applicable to the culture of the land, have learnt and are still learning how wonderfully labor may be abridged and the land improved by the application of this machinery, and the adaptation of science to the various occupations of the farm. How very useful then must these annual meetings be, when the most skilled and the most famous of England's manufacturers send forth their excellently adapted implements not only for exhibition but for competition. It is a gathering together of the best their factories can produce, and every farmer has not only an opportunity of inspecting them, but a chance of seeing them on trial.—Warwick is a good example of an ancient town, the more remarkable as standing in such close proximity and contrast with its new neighbor, Leamington. But during the Show Warwick lost somewhat its antique and venerable appearance from the numerous banners and various other decorations, almost covering every building. Approaching the town, the castle forms a magnificent object, as it rears its long front and massive towers with stern majesty against the sky. This castle, which is considered the most spendid relic of feudal times in England, is approached by a long winding narrow passage, deeply cut through the solid rock; the numerous branches of the variegated and thickly planted wood forming a canopy above, with the moss and ivy creeping in fertile wildness beneath, forms a picture romantic and pleasing. Continuing on and passing what is called the great gateway, the vast extent of the building is seen; here the Lane is presented to the view, and excites admiration. The spacious area of the court is clothed by a carpet of rich green sward. On the one side stands the grand irregular mansion of the feudal Barons of Warwick; on the other, many dark massive towers and embellishments. The scene is truly a grand one, "and so perfect is the fascination, that it would be difficult to say what might be added that could improve, or what might be taken away that would not injure the effect of the whole." This castle, perhaps, the finest now in England, has been the scene of many a bright and many a gloomy occurrence.

I am very much pleased with Shropshire, it is a fine picturesque agricultural country, resting extensively on the New Red Sand Stone of the geologists; a formation largely developed in the centre of England, and particularly favorable to agricultural purposes. A large breadth of turnips is cultivated here, and extensive flocks of Shropshire Downs are bred and fattened. There are several good herds of Shorthorns, and other breeds of cattle kept in the county, and barley is extensively grown, of the finest malting quality. The four and five year's courses of rotation seem pretty generally to obtain. The farmers as a body seem well to do, and comfort and order appear to pervade the whole texture of social life.

The scenery from the *Wrekin*, a noted hill or rather mountain, in this county, is truly magnificent. The summit commands a view over sixteen counties, the finest and most extensive view I ever beheld. Looking towards the west the vast extent of country, with many towns and villages scattered over its surface, was bounded by the blue far distant hills of Wales; while towards the east the country appeared like a vast plain, or perhaps more correctly, garden. The scenery is not wild and romantic as that of Wales or the Highlands of Scotland, but it is peculiarly rich and beautiful, calling forth in the spectator the deepest feelings of admiration. Sheep do well on the lower portions of these hills, and the valleys, particularly that of the lovely Severn, sustain an incredible amount of sheep, horses and cattle. The agriculture of Shropshire, as far as I could judge, appears to be in an advanced condition. G. W. B.

## WHEAT GROWING.

Although it will be rather too late in the season before the following article, copied from the *Rural New Yorker*, can be in our readers' hands for it to be of much practical benefit this year, still we think it may be useful to give it, as corroborating the letter from Messrs. Whitney & Co., in our last issue, and as contributing to the general information on so important a subject:—

### EVADING THE MIDGE.

It is nearly ten years since a full crop of wheat has been produced in the State—the prevalence of the midge (miscalled weevil) in these sections which formerly produced the great staple most abundantly, and the consequent partial or entire destruction of the crop, having caused a great change in agricultural operations and materially depreciated the value of farming lands in many localities. Farmers who had mainly cultivated and depended upon a wheat crop for a long series of years, were suddenly confounded by the appearance and ravages of a miriad-headed enemy, and knew not what to do to alleviate the calamity. In some districts of Central and Western New York, wheat culture was given up with scarcely an effort to head or counteract an enemy which seemed more numerous and devouring than the locusts of Egypt, and attention directed to other crops, stock breeding, grazing and dairying—thus inaugurating a comparatively new system of husbandry over a large extent of country. The change was of course somewhat difficult and expensive, so that the profits of the farm were, for a time at least, greatly diminished. In some localities, however, many farmers continue to sow and harvest wheat, though generally with little success until recently, and after adopting a change of varieties and other requisites.

The ordeal has been a serious one, but the skies are brightening, and we believe that wheat can again be abundantly and profitably grown in sections where the midge has prevailed and proved so destructive for several years. Indeed we think the experience of wise and prudent cultivators has already demonstrated the correctness of this opinion. Last year many farmers succeeded in evading the midge, and growing excellent and profitable crops of wheat—and their success induced others to sow somewhat extensively last fall, from which a good yield has been obtained the present season.—This result has been achieved, mainly, by a change of varieties, time of sowing, and mode of culture. Though the weather has been remarkably favorable for the growth and maturity of the wheat plant this season, the success of our cultivators is in a great measure attributable to their wisdom and foresight in management—for the midge was not destroyed by the June frost, as many suppose, but appeared in myriad swarms at the usual period, ready to attack and destroy the staff of life. The wheat plant escaped only for the reason that it was so far advanced at the period when the insect usually operates as to be invulnerable.

Within the past month we have devoted no little time and attention to the investigation of this subject, visiting various localities in this region for the purpose of examining the growing wheat of different varieties, and ascertaining as to time of sowing and culture. We have seen as fine fields of wheat in various parts of this county as were grown previous to the appearance of the midge. In every instance where early varieties were sown at the proper time, on good, dry and properly prepared soil, we have found the crops good—excepting only where the severe June frost proved injurious. As remarked two weeks ago, we are aware that "one swallow does not make a summer"—that the present season has been remarkably favorable for the growth and maturity of the wheat plant—yet, from information obtained, last season and this, from observation and intelligent cultivators, we are satisfied that the former great staple of this section of the Union can still be successfully and profitably cultivated. And yet, confident as we are in this opinion, we do not wish to excite hopes which may not be realised—and would not advise those who have changed from wheat-growing to other branches of husbandry in which they are now succeeding, to return at once or fully to the former staple. The soil of a large portion of this State is eminently adapted to the production of wheat, and in some sections—if the enemies of the crop can be evaded—it will probably long prove the most remunerative crop that can be grown. Hence, we believe it advisable for those who own good wheat soil, and are not profitably engaged in other branches, to try wheat culture again—returning to it gradually and on a small scale, until satisfied as to the safety and profit of a full resumption.

The practical question which arises among cultivators is: How can we best evade the midge? Many conjectural and some very plausible theories have hitherto been promulgated on this point, few of which have proved of any great value, being either impracticable or too expensive. The result of careful experiments, by some of our most intelligent, observing and experienced grain growers, however, proves that there are three requisites to successful wheat culture in regions where the midge prevails, and these we will briefly enumerate and discuss.

1st. *Varieties.*—The most important requisite is to secure and sow seed of early and hardy varieties—such as the Mediterranean, Golden Drop, Dayton, &c. Those who have grown these, and experimented with more recently introduced varieties, the past year, have been quite successful. The Mediterranean has improved in quality of late years and also in productiveness. In some instances, last year, from thirty to forty bushels per acre were produced in this county, the grain being of excellent quality, and we presume (from the fields we have examined) that the yield and quality will both prove good the present season. The Dayton variety was grown in Genesee county last year, and gave good satisfaction—escaping the midge and producing thirty five bushels per acre. Other new varieties have been tried on a small scale this year, such as the Boughton Wheat, (seed from Virginia) by Mr. Wray, near this city, and the Early May, (seed from Southern Illinois,) by Mr. Jas. White of Wayne county.—We hope to hear soon from these and other gentlemen who have experimented with new varieties, and that they will state time of sowing, yield per acre, quality, &c., for the benefit of the public.

2nd. *Time of Sowing.*—The general opinion among our best farmers is, that whatever seed is used, it must be sown early to escape the midge. Some are of opinion that the Soule's wheat can be successfully grown—as it has been this past season—by sowing as early as the first of September on rich, dry and well prepared soil. We should prefer the early varieties, such as those named above, and would sow as early as possible after the 25th of August—say the last week in August or first in Sept.

3rd. *Soil and Culture.*—Early varieties and early sowing will prove of little avail without a rich, dry wheat soil and good culture. The great cereal cannot be produced advantageously on poor wet land in any part of the Union, and especially in sections where the midge prevails. To produce wheat abundantly and profitably the soil must contain the proper elements, and be in the right condition. In many cases underdraining is of the utmost importance, even on farms where it is not considered necessary. No one need expect to grow good wheat, and evade the midge, unless he has a rich, warm and comparatively dry soil, and gives it good culture—but with these, and attention to the requisites above named, we believe wheat can again be cultivated successfully in Western and Central New York and other midge intested sections of the country.

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## THE WHEAT MIDGE.

We are indebted to a very intelligent agriculturist, Mr. John Wade, of Port Hope, for the following letter. It speaks for itself:—

(To the Editor of the Globe.)

Dear Sir,—I have been watching with much interest the almost daily communications you receive, relative to the prospects of the present harvest. Among the many communications you have published, I notice a series of questions, proposed to be issued as circulars by the Hamilton Board of Trade. I am most happy to endorse the heading you have given to it ('A Sensible Move'); and I intend to answer the questions whether I receive one of their circulars or not, by the time proposed, viz., the 7th of this month. But in the meantime, I wish to avail myself of a small space in your widely circulated paper, to say a few words about the midge (Cecidomia Tritici.) Prof. Hind, in his prize essay, did me the honour to notice a communication I addressed to the "*Canadian Agriculturist*" in September, 1856. Quoting a passage from that letter with regard to the wheat midge, I stated at that time 'That the Fife wheat is now as good after being grown seven years as it was at first, without the least sign or vestige of failure, in any shape except from weevil; and to know that you can be sure of a

crop of wheat sown as late as the 10th of June, and to fill and ripen without a speck of rust, and to yield 20 to 30 bushels an acre, is surely a consideration.'

What I stated in 1856, with a considerable degree of confidence, has been, I rejoice to say, fully borne out by three years more experience.

And what I would like to bring before the public at this time is a theory I entertained seven years ago, and which in my mind is fully established—that the ravages of the midge are confined to about 10 days; and that fall wheat which has shot before the 25th of June, has for all this time comparatively escaped; while both fall and spring wheat shooting between the 25th of June and the 7th of July, has been more or less injured; and then the spring wheat coming in after that time has escaped the midge.

I will now give you the result of my observations for the present season, in this vicinity.

The midge was first perceived on the wing on the 27th June, and in that shape till the 7th of July. All wheat in head before the 27th of June, was not much injured; while all which shot between the 27th of June and the 7th of July, has much of the maggot in it. A neighbor has a field of club wheat sown in the second week of April, clear of insects; while another piece of land sown with Fife at the same time, is full of it. This is accounted for by the Club being ten days earlier in maturing. I have visited several fields in this neighborhood within the last two or three days. One field sown on the 5th of May, will be damaged nearly 25 per cent; another sown on the 8th will suffer about 20 per cent.; and all I have yet seen which was sown after the 12th is clear altogether.

I send you these few particulars, with the hope that it will draw the farmers to make closer observations, as to time and the habits of those enemies of our crops, than they are generally in the habit of doing; having myself more faith in evading the mischief than curing it, by trying to destroy the insects themselves.

I am, dear Sir,

Yours most respectfully,

JOHN WADE.

Hamilton Gardens, near Port Hope,
August 4th, 1859.

A correspondent sends us a head of spring Fife wheat, touched by the midge, and appears to think it somewhat remarkable that it should be so affected. It is not at all uncommon. The Fife wheat is only valuable for its power of resisting rust. It can be sown late to avoid the fly, without being liable to the ravages of the other diseases. From the case mentioned by Mr. Wade, it is quite evident that the fly in spring wheat may be avoided by early sowing as well as by late. The fly did no injury, it would appear, at Port Hope, to wheat which had shot before the 25th of June. We should like to have information from other places as to the date of the insect's appearance.—*Globe.*

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## WHEAT FLY—DRAINAGE.

To the Editor of the Colonist.

Sir,—Having carefully read the several communications that have appeared in your columns, including your own remarks, on the subject of this country's greatest enemy, namely the wheat midge, I must say if your own suggestions were acted upon, the fly would soon be exterminated; but I cannot learn from any one of your correspondents what the results has been to any of the systems recommended. It is evident, however, from the information furnished that the evil only appears for a few days in its destructive form during the season; and the farmer whose wheat crop is either too far advanced when the insect appears as effectually to resist its ravages, or too late to feed it, may be considered fortunate.

I would ask, is it prudent for any man, or class of men, to trust to chance in overcoming difficulties that every path in life is liable to, when a remedy founded on experience is at hand, which, if applied, will place the interest involved almost beyond the reach of chance?

That the soil of Canada can be cleared of the pest which now threatens its prosperity must be obvious to any one having studied the history of agriculture in Britain. Effec-

tual drainage and good management has rid the best wheat lands of Scotland of the insect, and increased the average production per acre from eleven to over thirty-five bushels. The same process, if vigorously set about, will accomplish in a similar manner in Canada the desired success, and avoid the necessity of our agriculturists substituting coarse red wheats for our beautiful white samples, which command the highest price wherever they are offered for sale.

The following is a case in point, the result of under draining. A friend of the writer living in the State of New York, on land similar to the best grain farms in this county, had given up sowing wheat owing to its annual destruction by the midge, but having experienced benefits in England from draining, began in 1856 a similar process, which he thought from the position and nature of his land to be useless. That season he drained half of a ten acre field to the depth of four and a half feet and thirty feet apart, prepared the whole field and sowed it with Soule's wheat on the 5th of September. The following spring, when the roller was applied, the utility of draining was very perceptible, and at harvest time a hundred fold more so. The five acres that were drained, the grain was ripe ten days earlier than the other, and yielded over forty bushels to the acre of a fine quality, whilst the undrained portion of the field scarcely returned fifteen bushels to the acre, the insect having made such havoc in it. . . . .

The sequel to a thorough system of drainage, arrived at on scientific principles by men of note in England, can be learned by a reference to the last edition of the "*Encyclopedia Britannica*," under the respective heads of "*Agriculture*" and "*Drainage*." It appears that the temperature of the soil at a depth of 7 or 8 inches on well drained land, was found to be, from thirty-five observations made by Mr. Parker in Lancashire, ten degrees higher than on land in its natural state at the same depth. Now if the same effects can be produced here from draining, of which one would suppose there need be no fear, vegetation in early spring would be sufficiently promoted as to place our tenderest wheats ahead of the midge's time and be a safeguard against rust. The expense of draining on a system like the above may deter many farmers from undertaking it, but let them once experience its benefits and rest assured it will be vigorously prosecuted. Those who care only for the present generation may substitute three cedar rails and brush for tiles, which will answer every purpose and save the cost of the latter, but no one should think of draining to the depth of less than four and a half feet and thirty feet apart, and if they should decide on placing the openings at a less distance apart corresponding advantages will accrue.

Toronto, August 17, 1859. T. B.
*Colonist.*

Feed for Horses.—The London Omnibus Company, says an exchange, have recently made a report on the feeding of horses, which discloses some interesting facts. It seems that the company uses no less than 6000 horses; 3000 of this number have for their feed bruised oats and cut hay and straw, and the other 3000 get whole oats and hay. The allowance accorded to the first was—bruised oats 16 lbs.; cut hay, 7½ lbs.; cut straw, 2½ lbs. The allowance accorded to the second—unbruised oats, 19 lbs.; uncut hay, 13 lbs. The bruised oats, cut hay and cut straw amounted to 26 lbs., and the unbruised oats, &c., to 32 lbs. The horse which had bruised oats, with cut hay and straw, consumed 26 lbs. per day, and it appears that it could do the same work as well, and was kept in as good condition, as the horse which received 32 lbs. per day. Here was a saving of 6 lbs. a day on the feeding of each horse receiving bruised oats, cut hay, and cut straw. The advantage of bruised oats and cut hay over unbruised oats and uncut hay is estimated at five cents per day on each horse, amounting to $300 per day for the company's 6000 horses. It is by no means an unimportant result with which this experiment has supplied us. To the farmer who expends a large sum in the support of horse power, there are two points this experiment clearly establishes, which in practice must be profitable; first, the saving of food to the amount of 6 lbs. a day; and, secondly, no loss of horse power arising from that saving.—*Maine Farmer.*

Principles not Products Entitled to Awards.—The *American Agriculturist* calls for a reform in the management of agricultural societies, and says their exhibitions should be made a means of contributing to the science of the art of husbandry, by having the reports and addresses carefully prepared by eminent practical farmers; and advocates offering premiums in each class to those who can combine the most science and utility with the greatest economy in production.

## PROVINCIAL AND STATE FAIRS, FOR 1859.

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|---|---|
| Alabama, at Montgomery, | November 15, 16, 17, 18. |
| California, | September 27, to continue 10 days. |
| Canada West, at Kingston, | September 27, 28, 29, 30. |
| Connecticut, at New Haven, | October 11, 12, 13, 14. |
| Illinois, at Freeport, | September 5, 6, 7, 8, 9. |
| Indiana, at New Albany, | Sept. 26, 27, 28, 29, 30 and Oct. 1. |
| Iowa, at Oscolossa, | September 27, 28, 29, 30. |
| Kentucky, at Lexington, | September 13, 14, 15, 16, 17. |
| Maine, at Augusta, | September 20, 21, 22, 23. |
| Maryland, at Frederick City, | October 25, 26, 27, 28. |
| Michigan, | October 4, 5, 6. |
| Nebraska, at Nebraska City, | September 21, 22, 23. |
| New Hampshire, at Dover, | October 5, 6, 7. |
| New Jersey, at Elizabeth, | September 13, 14, 15, 16. |
| New York, at Albany, | October 4, 5, 6, 7. |
| Ohio, at Zanesville, | September 20, 21, 22, 23. |
| Pennsylvania, at Philadelphia, | September 27, 28, 29, 30. |
| South Carolina, at Columbia, | November 8, 9, 10, 11. |
| Southern Central Agricultural Society, at Atalanta, Georgia, | October 24, 25, 26, 27, 28. |
| St. Louis Agricultural and Mechanical Association, Mo., at St. Louis | Sept. 26, 27, 28, 29, 30 and Oct. 1. |
| Tennessee, at Nashville, | October 5, 6, 7. |
| United States, at Chicago, | Sept. 12, 13, 14, 14, 15, 16, 17. |
| Vermont, at Burlington, | September 13, 14, 15, 16. |
| Wisconsin, at Milwaukie, | September 26, 27, 28, 29, 30. |

## COUNTY AND TOWNSHIP AGRICULTURAL EXHIBITIONS AND SEED FAIRS, THIS AUTUMN.

| | |
|---|---|
| Berlin Seed Fair, | August 23. |
| Waterloo Village Fair, | September 13. |
| East Durham and Township of Hope Exhibition, at Port Hope, | October 11. |
| South Riding of Wellington Seed Fair, at Guelph, | August 24. |
| Do. do. Fall Exhibition of Stock, &c. | October 4. |
| Guelph Township Show, at Guelph, | October 5. |
| Erin Township Show, Erin Village, | October 19. |
| North Wellington Show, at Elora, | October 11. |
| County of Perth Seed Fair, Stratford, | September 1. |
| Do. Monthly Market Fair, | September 1. |
| Moriston Seed Fair, | August 22. |
| Hespeler Seed Fair, | August 27. |
| Galt Seed Fair, | August 30. |
| Toronto Market Fair, | August 24 & 25. |
| Union Exhibition of the City of Toronto and West Riding of York, | Sept. 14 & 15. |

State Fair at Albany, 1859.—The erections at the show grounds are progressing, and the most satisfactory arrangements for the Fair will be in readiness for the accommodation of the public. From the evidences before us we are warranted in saying that the approaching Fair will be one of the best the society has held; not only from our own State, but from the New England States, the exhibition promises to be larger than any held by the Society. Hon. John A. Dix has accepted an invitation from the President, Mr. Conger, to deliver the annual address at the State Fair.—*Journal New York State Agricultural Society.*

The Maryland Agricultural College, a new institution organizud on a liberal basis, will be open for the reception of students on the first Wednesday of October next.

## STEAM PLOUGHS—FARMING BY STEAM.

We published a few days since a description of the Fawke's steam plough, an invention which must revolutionize farming upon the prairies, and in this connection it may not be amiss to call attention to the great advance made by Great Britain, especially England, in cultivation by steam. In England, farmers already thresh, clean and grind their grain, bring home, feed and sell stock, all by means of that indispensable agent, steam. A homestead without a steam engine, in England, is almost as half finished as without a mistress, or a parish church without a parson. Of course there are still minor matters scarcely as yet brought within the field of its operations. But these are all bound to follow, and English farmers will soon grub up their roots, pump their water, warm their cattle in winter and cool them in summer as methodically as they now cut chaff or winnow wheat.

That steam cultivation will come into general use in every department of agriculture in England no one there now denies. At the last Farmers' Club meeting the question was fully discussed, and it was announced that Prince Albert had purchased one of the celebrated steam cultivators by Fowler & Smith, and it was agreed that once realize ploughing by steam, and drilling, draining, hoeing, and like work on a farm must follow "naturally."

At the London Farmers' Club, held May 2d, 1859, Mr. Mechi went fully into the subject. He has by horse plough and subsoiler broken up land very deep and proposes to break it up by steam plough a yard deep.

A Mr. Smith said that steam cultivation is an accomplished fact, and profitably so, therefore it is practically attained. Fowler & Smith have been practically proved superior to horse power in saving cost and in effect, and the Royal Agricultural Society of England has sealed it by an award and medal. Who shall say that we shall not have scarifiers and grubbers, by one hundred horse power, go down four, five or six feet? He had done best on a soil accidentally fourteen feet deep, by a filling in.

Halkett's Guideway Steam Cultivator is pronounced in England noble, simple and unerring. Boydell's Traction Engine is now drawing coals in Manchester at a penny a ton a mile on the highway.

Collinson Hall's Portable Engine, of 320 lbs. pressure, burns in a day's work of ten hours 8s. 4d. worth of coals.

Lord Willoughby de'Eresby's "California," a portable engine, on exhibition in 1851 at the Crystal Palace, London, is pronounced one of the most perfect and powerful engines ever seen.

John C. Morton, another member of the Club compares horse and steam power, and is convinced that steam is twice as cheap as horse. A farm of 200 acres, according to Mr. Morton, can fully employ a steam engine. Small farms can agree to hire or can keep one. Steam will do all the work in much less time than horses. At the Middlesex Cattle Show, steam cut in 3 minutes hay into chaff, 128 lbs.; roots for sheep, 314 lbs.; for bullocks, 620 lbs.; roots pulped, 490 lbs.; thick oil cake broken, 165 lbs.; corn, (wheat) winnowed in 13 minutes, 791 sheaves; barley threshed and dressed in 5 minutes 100 sheaves.

Fowler's steam machine ploughed 6 by 9 (a three horse work), an acre in an hour, at the cost of 9s. 2d. per acre.

On an English railway they carry 240 tons of coal a mile in three minutes for 2d.

The manufacturers of England employ 150,000 engines equal to 3,000,000 horses.

Halkett's plan of steam cultivation is parallel rails over the field; deeper cultivation between them and no hardening soil by carts and waggons. These rails are so many straight line guides for planting. I can till, hoe, etc., 150 or 200 acres in 24 hours, and not a foot is set upon the soil. The whole can be drilled in 24 hours ready for seeding. I spread liquid manure rapidly; I water it for a shilling an acre; I mow grass for less than a shilling an acre.

The cost of English steam ploughs is as follows:—Smith's, £500; ploughs 7 acres per day. Fowler's, £270, ploughs 8 acres per day. Smith's costs per day at work, £2 3s. 4d. Fowler's costs per day at work, £2 1s. 7d.

These are some of the facts given at a late meeting of London Farmer's Club, and we have no doubt will much interest our Western readers. The Great West is yet to be the field for steam cultivation, and its triumphs elsewhere must be eclipsed by those which it will realize upon the prairies of Illinois and other Western States.—*Chicago Democrat.*

Provincial Exhibiton.—At a recent meeting of the Local Committee, at Kingston, Dr. Litchfield, Corresponding Secretary, read a letter from Mons. J. Perrault, Secretary and Treasurer of the Board of Agriculture of Lower Canada, stating that he believed the cultivators and manufacturers of the Lower Province would profit largely by the excellent occasion of imitating the progress of agriculture and of industrial pursuits of the Upper Province, and by the opportunity of competing their own produce and manufactures with those of the sister Province at the Kingston show. Mr. Perrault said he rejoiced that the law opened the exhibition to all Canada, and added that the Board of Agriculture of the Lower Province desired, above all things, to encourage agricultural and industrial progress, by contributing to the union and reciprocity of feeling which should exist among the producing classes in both sections of the country. As Lower Canada will have no exhibition in 1859, the exhibitors would gladly avail themselves of the opportunity afforded them of attending the show in the midland district. The Board of Lower Canada would embrace every opportunity to reciprocate with Upper Canada the advantages of the Provincial exhibitions.

The Midge, Weevill or Wheat Fly—Its only Cure.—This dreaded insect is now in full operation in those places infected with it. So long as clover is sown with wheat, in infested districts, the insect will increase until it renders the cultivation of wheat useless. There is but one way to get rid of it, viz—it must be destroyed whilst it remains in its worm and pupa state. From the time the insect becomes a worm, until the following Spring it emerges as a fly, it is without the power of locomotion.—It comes out as a fly in May and June, flies to the nearest field of wheat, lays its eggs and dies. The worms hatch from the eggs and destroy the grain, and remain with the wheat in the barn, or on the surface of the stubble field, during the Fall and Winter. The Fall and Winter is the time to destroy them. Burn all the seeds and refuse from the fanning mill; plough the wheat stubble field deeply with the skim coulter plough, and thus bury all the insects which remain on the field. Cultivate the fallow thus made with the harrow and drag on the surface only during the following season; do not again plough it, and you will find that most, if not all, of the insects will be destroyed. It has been proved, without doubt, that when deeply buried the insect never again comes to the surface without assistance. If, however, the land is reploughed before the fall of the following season, the insect is again brought to the surface, and again goes off as a fly to the nearest field of wheat.—*Communicated, Colonist, July* 17.

The Corn Grub.—The corn crop has several formidable enemies to contend with, and among them is the grub, which sometimes literally destroys whole fields, and frequently damages the crop seriously. One of the best and most judicious remedies—perhaps the best ever suggested—is the application of salt as soon as the plant makes its appearance above ground, prepared and used in this way: Take one part common salt and three parts plaster of gypsum, and apply about a table spoonful around each hill, the mixture should not come in contact with the plants, as it may destroy them. This method has been tried over and over again by some of the best farmers of Pennsylvania, Deleware and Jersey, and when properly applied, has never failed to be perfectly successful. We hope our farmers who have reason to fear the depredations of the grub this season, will try the mixture. leaving a few alternate rows of corn without, in order to see the result.—*Exchange.*

Premiums for Field Crops.—The Judges on Field crops entered in competition under the township of Gloucester Agricultural Society, have awarded premiums for Fall wheat, oats, peas, barley, Indian corn, potatoes, carrots, parsnips, Swede turnips, common turnips, mangel wurzel, all examined on the ground, the quantity of each lot in competition being from quarter of an acre, in some of the roots, to two acres in the grain crops. They conclude their report as follows:—

"In comparing this year's crops with those of several years past, in the section of the township through which we passed, we came to the following conclusions. Fall wheat a good average crop. Peas, oats, corn and potatoes, much below the average. Hay exceedingly short of a crop and inferior in quality. This deficiency we think is chiefly owing to the severe frost, drought and intense heat of the early part of the summer.—Although we must with regret admit that there is considerable room for improvement in the tillage, and particularly in the selection of pure unmixed seed, and keeping buds down—a subject which we would earnestly submit to your consideration, and other Directors of Agricultural Societies."

GOOD ADVICE IN SELECTING SEED WHEAT.—But little wheat of any kind, winter or spring, has been raised in Maine this year, for the good reason that but very little was sown. The ravages of the midge heretofore, have discouraged the farmers, and instead of wheat they have sown barley, and fine crops of this last grain are now growing among us.

What little winter wheat was sown last fall, as a general thing, has done well, the berry being plump and bright. The spring wheat is also fine. Some fields have suffered on the margin, or outskirts, but the ravages are not so extensive as last year, perhaps because the fields for it to ravage are not so extensive. If, by a total suspension of the wheat culture for a year or two, we could starve the *critter* out, we should do well.

We find in some articles that have appeared in the *Michigan Farmer*, on wheat culture, good suggestion to those who wish to make selection of new seed to improve their fields, which we abridge for the benefit of those of our readers who may feel any interest in those matters.

One great cause of the failure of crops of wheat, says the writer, is the neglect in the selection of seed.

Known varieties of wheat may be improved by a constant and steady attention to the selection of seed intended to be sown. It is a system of improvement that can be practised by every one, if he will go at it systematically and carry it on some years.

The easiest process for the farmer, who feels that he would like to secure a better grain for seed than he has been in the habit of growing, is by *selection from the sheaf.*

In almost every sheaf in a field of wheat, there are numbers of heads that present all the characteristics of the variety almost in perfection; namely, the straw is short and yet of moderate length, the leaf is broad and long, the head is long, full in shape, and well filled out to the end of the spike; each of the little spikelets that contain the grain should be set upon the main stem regularly, that is to say, they should not be straggling, with vacancies between each; each of these should be sound, plump and healthy. No head should be selected that contains less than forty grains of wheat—all that contain more should be preferred. [We have seen heads in Maine that contained forty kernels, but not of late years.—ED.]

By selecting heads from sheaves, before being threshed, with some of these characteristics, and sowing only such grain, a few years would bring about a revolution in the quantity and quality of the crop, and this at no great expense of either time or labor. At any rate, it is a kind of labor that would pay, and if followed up would be found profitable; but there is no use in taking hold of it for one season, and dropping it the next.

To do anything towards the improvement of crops or stock, requires a long persistent effort that must run through a series of years; without such effort, no man can do anything to ameliorate the growth of either vegetable or animal. The laws of their growth forbid.—*Maine Farmer.*

THE TURNIP PLANT—ITS ENEMIES.—We learn from the *Agricultural Review*, (Dublin,) that the turnip plants on the light soils in the vicinity of Retford have been severely and generally attacked by an innumerable army of black caterpillars, which devour whole fields of the young plants in a few days. Their ravages are beyond credence, and all attempts to destroy them seem to be unavailing. Some of our farmers are employing children in picking them off, but it is a most interminable and apparently useless task. Others are dragging clothes over the lands to knock them off, but what are knocked off during the day find their way back during the following night. Some are passing a roller over the rows, but we have not heard with what success. We fear, however, the result will be serious to the crop, and the district has not suffered so severe a visitation since the year 1851.

FLOWERING OF POTATOES.—Dr. Manby, an eminent English agriculturist, and the author of a Prize Essay on the cultivation of Early Potatoes, says in that essay, which has recently been published, that "a flower to an early potato is considered a sign of deterioration, the first symptom of *growing out*, it being contended that all the strength of the plant should be thrown into perfecting the tuber, and not into the opposite extreme." He would therefore eradicate them as soon as they appear, and save seed from plants which have shown no indication of flowering. Experiments have shown that potato plants beginning to show a tendency to flower, perfect their tubers less early and perfectly than before that tendency was developed.

Care of Sheep in Summer.—Some flocks of sheep look as if their owners were possessed of the notion that the only care required by these animals in summer was to relieve them of their fleeces, and then leave them to shift for themselves. But such is not the case—such is not the management of those who make sheep keeping a profitable part of their farming.

If sheep have been well wintered—if they go to a "good bite of grass" in May, in good store condition, their summer care will be a simple affair. Nothing more will be requisite than to keep them in fair pasturage, with an occasional supply of salt, and the attentive eye of the owner frequently upon them, to see that all is right. It is often well to keep the ewes with lambs by themselves during the summer, that they may have better pasturage and a good supply of milk be furnished for their young. The wethers and other sheep selected, when shearing, for sale during the summer, should also be placed in good feed by themselves; not only to have them in good marketable condition, but that there may be no temptation to allow buyers to select from the whole flock—the farmer should do his own selecting if he would keep up or improve the character of his flock. Yearling and dry ewes will do better on shorter grass than either class above mentioned. If the flock is small and the feed good, all the store sheep can be kept together with good result.

The importance of keeping sheep always in good condition, can scarcely be over estimated. "Spring poor" flocks require especial good care during summer to gain flesh to any extent, and those allowed to become thin in summer, scarcely ever enter their winter yards fit to endure the rigors and privations of that season. On the contrary, if at any time it is thought profitable to fatten well kept sheep, it can readily be done, and at one-half the expense required to bring a poor animal into equal condition. The yield of wool is considerably greater, the increase of the flock is of a much better character, and the value of the sheep in market is profitably increased by any reasonable amount of care in keeping them in good order.

A change of pastures is undoubtedly beneficial to all kinds of stock—and to none more than sheep. We have formerly remarked upon this question, and further experience convinces us that it is desirable to change the pastures of cows and sheep at least semi-monthly during the summer.—*Country Gentleman.*

# Editorial Notices, &c.

Correction.—The prize offered in the Prize List of the Provincial Exhibition, Class 44, Sec. 19, for portable steam engine, should be $30 instead of $3, as printed.

University College, Toronto.—It will be seen by advertisement that the lectures in the Agricultural Department, will commence on the 1st of November. Occasional students can enter this and other classes, without being subjected to an examination.—As the fees in this institution are merely nominal, the only expenses worth mentioning to which students are subjected, are those for board and lodging.

The Michigan State Fair will be held on the 4th, 5th and 6th days of October next, on the same ground on which last year's exhibition was held, the expense of erecting new buildings being thus avoided. The prize list has been completely re-arranged and remodelled, and the great success of last year's show leads the directors to hope for at least equal results this year.

United States' Fair.—Active preparations are being made at Chicago, to have the grounds in readiness by the 12th of September. Col. Capron has charge of the erections.

High Prizes.—In a list of premiums to be awarded at the Fair to be held in St. Louis, Mo., from September 26 to October 1, we notice the following: $1,000 for the best thorough bred bull of any kind; $1,000 for the best roadster stallion in harness; $1,000 for the best thorough bred stallion; $300 for the best steam plow; and four prizes of $125 each, and two of $100 each, for the largest and best crop of wheat of named varieties.

THE

# Canadian Agriculturist,

AND

JOURNAL OF THE BOARD OF AGRICULTURE

OF UPPER CANADA.

VOL. XI. TORONTO, OCTOBER, 1859. No. 10.

## ON PRESERVING ROOT CROPS.

It is fortunate for the Province with, perhaps, as scanty a crop of hay as ever was known, that turnips, mangel-wurzel, potatoes, carrots, &c., are more than usually abundant. With our cold, long winters, the supply of an adequate amount of good provinder to cattle, is among the most serious and pressing questions that can engage the attention of the practical farmer; for without sufficient food of the right quality, together with the necessary warmth and protection it is impossible to prevent the best animals from deteriorating. In the present exigency of a very short crop of hay, much may be done to mitigate the evil by carefully husbanding the various materials of cattle food which we possess, and a little extra attention to these matters will be highly remunerative to the owners of stock.

Of all the cultivated roots the *Swedish Turnip* is the most permanent and valuable as a cattle food, abounding in highly nutritious ingredients. This root is every year becoming more extensively cultivated, and the prospect of a good remunerating crop in most part of the Province, the present season, is highly encouraging. What now principally remains is to secure the crop in the best possible condition. In this climate late sown Swedes will rapidly increase in size during the month of October, particularly if the weather be warm and moist: in England the growth extends through November, and sometimes to near Christmas. In this country people often commit the error of allowing their turnips to remain too long in the field, as the rigours of our winters make it necessary that they should be pulled, and properly secured. Turnips intended for Spring feeding ought to be removed from the ground by the beginning of November, at the latest, for any considerable degree of frost will injure them for keeping. An airy, well ventilated cellar or root-house, affords the best means of storing them, so as to allow access during the winter months. But when turnips are intended for feeding to cattle in Spring, there is no better way than to put them into heaps in the field. This operation, however, requires the exercise of judgment and care, or the object may be entirely frustrated. As soon as the bulbs have been properly tailed and topped, taking special care not to cut too closely,

they should be put into longitudinal heaps on the surface, or a little below it, gradually drawing in the sides to the slope of an ordinary roof. A moderate covering of straw, with a little earth to keep it firm, will be sufficient till the severe weather of winter begins, when the heap will require a thickness of some dozen or fifteen inches of straw or leaves when pressed, with a covering of earth somewhat thicker. But it should be carefully borne in mind that Sweedish turnips are unlike potatoes or mangel-wurzel, and will endure a moderate amount of frost without any serious injury. Indeed more Swedes probably are injured and sometimes destroyed, from too much protection than from too little. The great point is to keep them sufficiently dry and warm, to exclude severe frost and at the same time prevent fermentation. If turnips are put into too warm places or in large heaps, without the means of evaporation, they will be sure to ferment and rot; which result will often happen in a too close root-house and in large heaps in the open air, when too closely confined. Hence the preservation of roots through the winter months requires a watchful attention. In preserving in heaps out of doors, apertures or chimnies, should be left every few yards, extending from the bottom to the top filled loosely with straw; the tops of them should always be left open except in extremely cold weather, when a board or sod may be placed over them for a few days. These apertures which keep the mass cool, and thus prevent fermentation and allow moisture to evaporate, are the safety valves of the farmer's turnip heap. In cellars or root-houses the windows or doors should be partially left open in milder weather, and thus secure the same ends.

These remarks, in a modified form, perhaps, will apply to the preservation of root crops in general: only in case of potatoes and mangels, the smallest degree of frost must be shut out, if possible, and consequently they require a greater thickness of external covering than Swedes. We put into a heap in the field the end of last October, some potatoes, (cups), which came out in May in as good condition as when lifted, with scarcely a bud vegetating, and which, after being put into a cool, dry cellar, were quite fit for the table to near the end of August. Where large quantities of parsnips are grown, it is a good plan to leave a portion in the ground all winter and they can be taken up quite fresh in the spring. All stagnant, surface water should be prevented, and a little loose litter spread over the bed will be advantageous.

By giving a little more attention than is usually done to the preservation of root crops, the cutting of straw, which is this year both good in quality and abundant in quantity, and the feeding with bran and grain, the deficency in the hay crop may, in a great degree, be compensated, and our horses and cattle carried through the approaching winter, in comparative comfort and good condition.

# Correspondence.

## THE LAKE DISTRICT OF ENGLAND, AND THE HIGHLAND SOCIETY'S SHOW.

(*From our Own Correspondent.*)

MANCHESTER, August 9th, 1859.

*To the Editors of the Agriculturist,—*

* * * * * * *

I was much delighted with my trip into the north, particularly with the scenery at the English Lakes. It far surpassed in grandeur anything I had previously seen, in fact I may say imagined. It is impossible to give any one anything like a correct idea by description. I shall send a few views by mother which I purchased at Keswick. I

went by rail to Windermere, where I arrived about noon; I then bought a small map of the lake district and marked out my route; having done so, I put my leather bag over a stick on my shoulder, and started on my pedestrian tour. Having but a short time, my object was to see as much as I could; so having my bag with me I stayed wherever I might be when night came on. Leaving the village of Windermere, I walked to Bowness on the lake; this is a very pretty little place—the old church yard with its dark Yews, and the old weather-worn church, long and low, is the most venerable object in the place. From here I went by a small steamer on the fair Windermere to Ambleside; the scenery was truly grand, as on the one side nothing could be seen but mountains towering one above another until their summits were lost to my sight in the dark clouds above. Having got some refreshment I walked to Coniston, at the head of a beautiful piece of water bearing the same name. This was a grand walk, and on this day I much felt the want of a companion, but as I could not be favored with one I made up my mind to enjoy this indescribable scenery in solitude.—Every now and then a scene presented itself which caused me to rest and think of those who were so far from me. Leaving Coniston I wandered over the hills and through the passes on my way towards Grassmere, and after having roamed about four miles on roads, a greater portion of which was passible only by the pedestrian and saddle, the shades of night came on, and the mountains seemed to clothe themselves in dark blue and black. This was the most solitary walk I ever had, and when the dark rolling thunder clouds and shades of night gave a black hue to the mountains, many of whose summits were entirely obscured, it presented an aspect which I think I can never forget. I still wandered on and shortly viewed two or three houses, which I soon reached and obtained a comfortable bed for the night. Having past a very comfortable night I started off early and reached Grassmere after about two hours and a half's walking through a part interesting, as it contained many slate quaries. Grassmere with its lake is situated, as it were, in a large basin, and is an exceedingly beautiful place. After taking my morning meal I visited the old church which possesses a fine old tower, beneath whose shadow lies the Poet Wordsworth. Leaving Grassmere I started for Keswick. This was another grand walk, perhaps more magnificent than the previous one. I passed by Mount Helvellyn, and had a glass of beer in the Swan Inn, the very Inn from whence Scott, Southey and Wordsworth, set forth on ponies for the ascent of Mount Helvellyn, which is on the borders of Westmoreland and Cumberland. On this walk I passed through the gap of Dunmail Raise, which is very romantic and pleasing; continuing on I reached the very picturesque scenery of Shirlmore. Beyond this lake, and previous to entering the lovely yet grand valley of St. John, I passed what is called "Castle Rock," the scene of Sir Walter Scott's charming romance of the Bridal Triermain, and though its magic halls has long since melted away, its massive walls and turrets still remain. After proceeding on my journey for a short time, the lofty summit of Skiddaw and Saddle-back were before me, and in time I arrived at the grandest and most central station of the Northern Lakes district, Keswick. Here, after securing a bed room at the "King's Arms," I visited Greta Hall, which was for upwards of 40 years the residence of the poet Southey. I then visited his grave and monument at the church of Crosthwaite. (There are a great many places whose names end in "waite;" and I learned from a mountain guide that all places whose names thus ended were subject to being flooded.) In the evening I walked to Ladore where I took tea, (the house you will see in the view) and then went back to Keswick by row boat on Derwentwater. According to my taste, this is the finest of the lakes; in it are three or four small islands, on one of which the hermit Herbert lived, and he was then visited once a year by his particular friend St. Cuthbert. While on this lake I had a fine view of Borrowdale; this really is *the scene* of the lake scenery, for no where did I see the grouping of mountain peaks more striking, and among them was the well known "Scawfell," the top of which is the highest land in England. After arriving at Keswick, I got into conversation with a very pleasant young man staying at the same place from Liverpool: he, like myself, was making an excursion alone. After having passed a comfortable night I got up fresh, and we made preparations to ascend Mount Skiddaw. At nine o'clock, a. m., we commenced the ascent from Keswick; the day was warm and remarkably clear, and after four hours of upward travel we reached the summit six miles from were we started from, and 3,022 feet above the sea, or about 2,900 feet above the lake at the base. The view from this elevated spot must be seen to be appreciated, for no description could make it understood. In one direction there was nothing but mountain tops, with the lakes Derwentwater and Bassenthwaite beneath us

turning partly round I could see the Isle of Man, and to the North the Solway Firth, and the hills of Scotland, as well as the southern counties of Scotland; but as I stated above no one can form an idea of this magnificent view without seeing it. We made the descent in about one hour and forty-five minutes. This was sufficient for one day's work; but when it is clear a person is well paid for the labor required in making the ascent. From Keswick I went on a coach to Penrith, and from thence by rail to Edinburgh.

The Highland's Society's Show was held in Bruntsfield Park, and I regret that owing to the wetness of the weather I was unable to inspect its various departments as I could have wished. The great public day was Thursday, (August 4th) when the admission was a shilling. Notwithstanding the rain, about 30,000 persons, it is said, visited the show this day—vast numbers being purely of the agricultural class from the country. Among the distinguished visitors was his Royal Highness the Prince of Wales, attended by Colonel Bruce, and a number of the leading members of the Scottish aristocracy. I attended the trial of implements on Wednesday, when the weather was more favorable, and a large number of people denoted by their presence the interest which they felt in the proceedings. In consequence of drought the ground was too dry and hard for thoroughly testing the ploughs, particularly the style of their work. Howard, of Bedford, took the lead with his celebrated wheel-plough, followed closely by its keen competitor the Scotch swing, which in the hands of a skilful holder is a most efficient implement. The English wheel ploughs are, however, easier managed by less expert ploughmen, performing equally good work, and therefore better come up to our modern requirements of improved machinery. Howards's and Seller's trench or deep furrow ploughs were subjected to a severe trial, and their merits seemed pretty nearly the same. Of drills, grubbers, threshers, &c., the number was considerable, and in general of excellent manufacture, but I observed nothing in this department which was not more fully represented at the recent show of the English Society at Warwick. No awards were made on the reaping machines till they could be actually tested in the harvest field.

In live stock the show was particularly good; the short horns were well represented and comprised some first rate specimens. I learn that this world-renowned breed is extending into the far north, and that some of the best herds in Britain are to be found in Aberdeenshire, and even the Orkney isles, where the Sweedish turnip and other root crops are extensively cultivated. To me, however, the chief attraction of the show was the native breeds, which I had never had an opportunity of seeing before, at least in such numbers and perfection. The West Highlander, Polled Angus, and the Galloway were well represented, many of them perfect beauties of their kind, and excellently adapted to their respective localities. I have seen some of the latter in Canada, to whose soil and climate these breeds, I should think, are well suited, particularly in the higher and more northern portions of the Province. The Ayrshires, in point of numbers, disappointed my expectation; the distance from their principal breeding locality was assigned as the cause. In Downs, specimens from the Duke of Richmond's Sussex flocks carried off the principal prizes. You have some good specimens of Clydesdales in Canada, but what I saw here were splendid beyond description. I cannot go into the particulars of the show, which no doubt you will see in the papers.

I regret that this, my first visit to Scotland, should have been so very brief and hurried, and hope ere long to have an opportunity of seeing the country and its people, by whom I was very favorably impressed. One cannot help feeling here that the industry of the people is guided by no ordinary amount of intelligence. Edinburgh is, I think, the finest city that I have yet seen; in the walks of literature and science it can boast of the greatest names in British history; and the wide diffusion of the blessings of education among the masses of the people, has been the means of raising the agriculture and industrial arts of Scotland to their present high position. I unfortunately missed seeing Professor George Wilson, who, however, kindly left me a note of introduction to Professor Balfour, who ranks amongst the most eminent of living botanists. I shall not soon forget the kindness of the Professor in showing me the Botanic Garden, and the principal curiosities connected therewith, all of which are worthy of the Scottish metropolis. The agriculture around Edinburgh is perhaps the most advanced of any portion of the British Islands, but the excessive drought was threatening the very existence of the turnip crop, which forms so distinctive a characteristic of Scottish husbandry. The soil of the Lothians is of the happiest description for general husbandry, to the advancement of which, industry, guided by intelligence, has already accomplished

so much. Of the Highlands proper I saw nothing. Still here and there the scenery reminded me of the characteristic imagery of the poet:

"Caledonia, stern and wild,
Meek nurse for a poetic child,
Land of brown heath and shaggy wood,
Land of the mountain and the flood."

In these times of deep and wide spread anxiety, when several of the nations of Europe seem trembling in the balance, go where you will in these free and happy Islands, which form the central heart of the great British Empire, you will find a united and determined spirit of resistance to any foreign aggression, and of devoted loyalty to the Queen. I read in an Edinburgh paper the following extract from a speech of Sheriff Gordon, when distributing the prizes awarded by the Edinburgh Highland Society, whose anniversary was held during the week of the Exhibition, the spirit of which will find a ready response in every true Briton's heart, whatever portion of the Empire he may inhabit:—"I think that I may look with some confidence around me; and although we do live in times of uncertain atmosphere, when the storm and the peril may burst upon us almost without warning, we have no reason to distrust the sufficiency of these living ramparts, which shall repel the rash invader, and shield our dear and sacred homes; and when I saw about me the uniforms of those riflemen, I called back the words of Sir Walter Scott, and said to myself:

"Still as of yore, Queen of the North,
Still can'st thou send thy children forth,
Ne'er readier at alarm bell's call,
Thy burghers rose to man thy wall,
Than now in danger shall be thine
Thy dauntless voluntary line,
For fosse or turret, proud to stand,
Their breasts the bulwarks of the land."

G. W. B.

# Agricultural Intelligence.

## EXHIBITION OF THE HIGHLAND AND AGRICULTURAL SOCIETY OF SCOTLAND.

The Annual Show of this venerable Society—the parent of all other agricultural societies in the British Empire, took place in Edinburgh the first week in August.—Notwithstanding the unfavorable weather for two or three days, and some internal difficulties recently experienced by the society, we are happy to find that the exhibition was a success, and that everything went off in the happiest manner. The following account, abridged from an elaborate report in the *Mark Lane Express*, will be interesting to many of our readers:—

"There is no denying that this Edinburgh Meeting was regarded as something of a crisis in the career of the Society. Had anything gone wrong, had anything ungracious or offensive occurred, there is still an undercurrent of opposition quite ready to make the most of such arguments. But we must repeat that everybody was on his best behaviour, and that the business of the week so far as we could watch it, was not marred by a single mischance or dispute. A certain desire, moreover, to march with the spirit of the times is now clearly observable. For the first time the public had two days allowed them to inspect the stock, and for the first time, too, were the cattle covered in. It is very fortunate that they were, as the weather was by no means settled, and some heavy rain fell on the Wednesday afternoon. But the Society has to go a step further in this direction, and give the implements the same protection. We were loth at first to offer any very strong opinion as to the arrangement of this department of the meeting, but the experience of year by year only the more confirms our English notions as to its few advantages and many drawbacks. The rain itself was, perhaps, the most severe commentary on such a system. Only picture prize ma-

chines of all descriptions scattered over some acres of ground, without an atom of covering either for the exhibitor or his wares, and a heavy storm coming on! Let the several entries of each section be placed side by side, if you please, for the inspection of the judges, but then allow the makers subsequently to collect them in their own stands. The present plan positively spoils trade, and, as we said last year, "it would be quite as much for the good of Scotland to buy as for England to sell." Many of the manufacturers would gladly pay for the accommodation, which it must be borne in mind the Highland Society now alone refuses them. The English firms, more especially, are gladly culminating in their expression of dissatisfaction on this point, and the Scotch farmers are at length beginning to thoroughly appeciate English machinery. Never previously was the admission so openly made, as never before, perhaps, was the superiority so thoroughly demonstrated. About the most striking example of this was the trials of the ploughs on the Tuesday, in the presence of such a crowd of landlords and tenants as one rarely or ever sees so early in the proceedings. There were a great number of pair-horse ploughs put to work, chiefly of course of the Scotch swing make, but fortunately with one or two of our wheel-ploughs by way of comparison. Better still, these went bodily into competition. The Messrs. Howard, of Bedford, who last year at Aberdeen held off so determinedly, now entered openly for the premium, and won it as fairly. The most clannish of Scotchmen confessed there was no work like it. The noble President of the Society was delighted, and local men hung round the performance to gather hints and wrinkles for their own advancement. Mr. Sellars was, to the credit of the country, a good second, and Page of Bedford, although we believe not mentioned by the judges, as honest a third. Still the interest centred on the other English plough, and the only complaint was that the Hornsbys, who were present, had not also gone to trial. It was clearly against them, in the estimation of the public, that they did not. But the non-prize system is susceptible of endless ramifications and interpretations, and in endeavoring to observe them only too religiously, the Grantham house placed itself in a somewhat false position. It is curious to see how they came to do so. There is, then, in London, an institution of the proceedings, of which, although little heard, yet that still exercises considerable influence in its way. It is, we think, termed the Society of Agricultural Engineers, having for one of its chief objects the abolition of the prize system. In the prosecution of such a laudable endeavour, when it was found a few months since that the Highland Society would not give way, but still continued to offer premiums for implements, a majority of the agricultural engineers came to this resolve—They would not exhibit at all at Edinburgh, and we are assured a paper to this effect was signed by Clayton and Shuttleworth, the Howards, the Garretts, the Ransomes, and others. The Hornsbys alone, however, would not promise thus much, and so the proposal fell in, and those who chose were at liberty to enter for the Scotch meeting. Clayton and Shuttleworth and the Hornsbys appear to have done so, under the idea that as at Aberdeen they were bound not to compete. Mr. Howard, on the other hand, sees the absurdity of attempting to persevere in so impractical a course, and so far as he is concerned the non-prize plan is at an end. But his opponent and fellow-engineers maintain that they have not been fairly dealt with, and that had they known he was going to compete they should have arranged to do so, too. As it was, the Hornsbys did put a plough to work early on Wednesday morning, for which they were severely reprimanded. But we scarcely see the force of this. Were not ploughs permitted to go to work at Aberdeen, "not for competition," but to show their character in comparison with the prize-takers? And the Hornsbys did no more. However, this dispute is a very suggestive one, and lays bare the secret and purpose of the whole agitation—when once you get to the top of the tree be content to stop there. People said Hornsby was afraid to endanger his Warwick triumph at Edinburgh. And others asked if Howard had been first in England whether he would have competed in Scotland? In speaking of this year's experiment of no prizes in Ireland, as tried the other day at Dundalk, *The Irish Farmer's Gazette* says, "The absence of trials or competition for prizes has in some degree lessened the interest taken in these shows, and will no doubt act injuriously on the funds of the Society, and, if we mistake not, *also on the exhibiters.*" It certainly so acted at Edinburgh. Mr. Howard, who did compete, was in general favour; and Mr. Hornsby, who did not, in almost as much disgrace. The Society of Agricultural Engineers are singing terribly out of tune with each other; and we should really counsel them, as the parish-clerk did his choir under similar circumstances, to "*drap* it." We must be understood as by no means divulging any private or confidential intelligence. All we have recorded

was the common talk of "the trade;" while even telegrams were running up and down during the Tuesday, as to what the Society of Agricultural Engineers should or should not do.

We have considered it only a duty to make some special reference to this matter, obviously important as it is to the managers of our agricultural associations, as well as to the whole body of our implement-makers. The one great deduction is inevitable. As Lord Brougham said the other day, "Man's lot is to compete with his fellows;" and the more openly he does so, the better. We counsel our different societies, ere they commit themselves to the non-prize system. We put it to the great body of manufacturers whether they should follow "the Society," the very generals of which cannot agree with each other? There is a fine opening now just dawning for the introduction of good implements into Scotland; but we fearlessly assert that this can never be made the most of, without the incentive of public competition. Let us remember how the people crowded round these trials, and how ready they were to conviction thus put honestly before them. And let us compare with this the listless way in which they looked at entries that carefully avoided such a test. When the agricultural engineers signed their "round robin" not to exhibit at Edinburgh, because premiums were offered, they were doing both themselves and the agriculturists of Scotland as much harm as it is possible to conceive. As a correspondent devotes a paper specially to the implement section of the show, we may now turn to some of its equally attractive features.

A Scotch show of stock is essentially national, and the Edinburg meeting perhaps of all others was peculiarliarly distinguished in this wise. It was in the native breeds that its great strength was to be found. It was the Highland and Ayrshire cattle, the Cheviot and blackfaced sheep, and the Clydesdale horses that showed to the greatest advantage. We use the term advisedly. No other kinds were anything like so much at home here. The very Shorthorns, now at home almost everywhere, certainly suffered as a class against the rough-coated but blooming-looking mountaineers. The Leicesters and Southdowns had rarely the healthy vigorous appearance of the long bang-tailed Cheviots, or the resolute curly-horned denizen of "the hill." In a word, there is no other quarter of the kingdom in which climate has so much to do with it; and although they may be improved, it is rarely that the original breeds can be displaced. In the lowlands, and where the country will pay for high farming, some change may be observable; but elsewhere, almost every district adheres to its own sorts as faithfully as to the pedigree of its clan or the pattern of its plaid. Even the most advanced of agriculturists have discarded the fine Leicesters we saw them buying at Berwick a few years since, and have gone right back to their own sorts. And a Scotch Leicester is rather a different animal from our English one, as Mr. Wiley gave us the opportunity of remarking at this very meeting. Amongst the horses, here so comparatively close to the banks of the Clyde, there was no such chance of comparison. Saving only a good-looking thorough-bred horse, or a curiously small Shetland pony, there was scarcely anything to interfere with the long line of Clydesdale colts and fillies. Still, like the horned sheep or the Highland cattle, the Clyde horse is clearly susceptible to improvement, or, in other words, to the influence of these meetings. A Clydesdale prize mare is now a very different animal from that the members of the Highland Society hung up in their Museum Hall in 1840, with her long legs, weak thighs, hollow back, and light middle-piece. Either the painter or his patrons must have been put to it for a subject in those days.

The great show of horses, however, was not on the show ground; or, at least, it was not here that the stranger gathered his impressions of the real use and value of the Clydesdales. They may be pampered up for mere exhibition, and are certainly as a rule made very fat. But at Myreside Farm, where the implements were on trial, there were some fifty sets of working pairs, ready to take out the ploughs, harrows, grubbers, and mowers. These, as usual, were borrowed for the day from the neighboring tenantry; and never were such a lot of plough-horses got together. It was, in fact, the Clyde horse shown to the greatest advantage—in excellent condition, very uniform in character, generally of great size and power, they fairly for a time monopolised the whole interest of the scene. People could scarcely be got to look at the work, but were going about trying to pick out the best couples—by no means an easy matter.—It was not, indeed, until the ploughs started, and horses and implements were nearly all matched, that the visitor remembered what he had specially come to see. There was not only the make, shape, and action of the Clydesdale as a cart-horse that com-

manded so much admiration, but equally so the manner in which they were kept.—They were as fresh and as lively as kittens, although still we are assured, only in common working order. But the Scotch farmers evidently pride themselves on this point, and a ploughman and his pair will cost on an average quite a hundred a year. Some were consequently anxious enough to have another look at the steam plough, but strange to say there was not one in the entry. For some altogether inexplicable cause the Society declined this year to give any prize for such an invention. The Messrs. Howard, however, offered to send a set of Smith's apparatus providing a field could be found to work it in. But even this could not be promised, and so the meeting was minus what should have been one of its chief features.

The Clyde horses in the catalogue quite maintained the reputation of those we had seen the day previous. It was pronounced to be one of the best entries of them ever seen; but was certainly not for stallions equal to the Glasgow show of two years since. The first prize aged stallion, a grey horse, was the subject of a deal of discussion, and it is rather difficult to understand how he came to be ranked so highly. Standing by his side, he is by no means a true-made animal to begin with, being but indifferent before, and with little of the acknowledged character of the Clyde about him. He loses this yet more when had out; for he is a wretched heavy, slovenly goer. Still it was said that he gets capital stock; but this must be a curious point to judge a horse in the show by, where men are assumed to know nothing of an animal but what they see before them. The second prize, a bay horse, queerly marked with the *black* leg right over the hock and up to the stifle, was generally, and as we think justly, preferred. He is smarter to look on, more compactly built, and altogether a better horse out. But the strength of this section was found in the mares with foals, snd mares in foal. We never recollect such a succession of good animals, and generally so much alike as to answer at once for the care with which the breed is now preserved. As a rule the Clydesdales show far better at five or six years old than they do as young stock, and some of the yearlings on the Links looked very mean and poor when put in comparison with their elder brethren. It is, indeed, difficult to imagine that they could ever develop into the fine horses they do; but it appears they are kept very indifferently until a year or eighteen months old, and gradually "put on." The entry included many well-known prize animals at Aberdeen, Perth, and elsewhere; but the catalogue was lamentably incomplete in this respect, and did not give the name or pedigree of a single horse. It may be much improved by being modelled henceforth after our English one, not merely as regards the horses, but also in the entries of other kind of stock. For instance, we cannot possibly understand why the pedigrees and names of the shorthorns should not be given with the number of the animal, instead of being all huddled together right at the end of the book, where not one man in a thousand ever sees them or reads them.

Notwithstanding that this addenda advised us of some very high-bred animals, the show of Shorthorns was not a great one. In truth, had it not been for Mr. Douglas' entries, the cow and heifer classes would have been wofully weak. But the master of Althelstaneford came very welcomely to the rescue, and with more determined success than has yet attended him this summer. The beautiful Venus, the renowned Ringlet, the Lady, and her attendant companion the Maid of Athelstane, were our fellow-voyagers from Belfast to Glasgow; and we found them all in high health and honour again, adding by their own innate attractions to the picturesque show ground at Edinburgh. It will be seen that Mr. Douglas took the first and third premiums for cows, and the first and second for two-year-old heifers. The latter—the Lady and the Maid of Athelstane—have, like the Queen of Trumps and Venus last year, their two parties; and while the Maid was preferred at Dundalk, the Lady had the lead in Scotland. They are a most admirable pair, and it is difficult to separate them; but although the Maid may have a little the best of it for quality, the Lady has by far the finer head and forequarter; and, for choice, we lean to the second reading. The cow Volga, that separated Mr. Douglas' two, also beat Rose of Sharon last week in Ireland; and has so been first at the Irish, second at the Scotch, and third at the English meeting. She was bred by Mr. Stewart, of Southwick; and is not only very useful looking, but very well bred, going back to the famous Cherry tribes. Mr. Stewart, however, could not get her to breed, and she was sold as a butcher's beast. But she has since been frequently exhibited, as well as objected to as not being a breeding animal; although now at eight years, she has a calf by her side. The first prize yearling heifer from the Messrs. Turnbull's herd, is very sweet and neat looking, and the Duke of Montrose's second

and third are both well bred and well made. But "the field" behind those placed was terribly scattered. The bulls were generally better, and the first prize one, bred by Mr. Bolden, goes back to the Duchesses; although, like many of the Bates breed of bulls, he is nothing so very extraordinary to look at. He was the first prize two-year-old at Aberdeen, and Mr. Gulland's was there third in the same class, so that they still keep their relative positions, but there is now very little to choose between them. The third was the third aged bull at Aberdeen, and the first at Dundalk last week, and perhaps for appearance, size, and symmetry he was here, too, the first of his order. It must have been "the quality" that beat him. The two-year-olds were a good but small class, and the yearlings not of such equal excellence. In this lot Lord Kinnaird had the best for shape and symmetry, and Mr. Smith for touch and pedigree. The latter, indeed, is very highly connected, being by a son of Booth's Crown Prince, and bred by his Royal Highness the Prince Consort. His quality is certainly very fine, but he is "just" a ragged animal to look on.

We have already spoken of the remarkable excellence of the native breeds, and we may dwell more especially on the Highlanders and Ayrshires. In our many visits to the north we have never seen such a show of the former. Indeed we began to think they were growing out of date of late, but they quite recovered themselves at this meeting. There was more size, as usual rare constitutions, good forms, and that hardy picturesque appearance that would, above all things, go to qualify them for those regions from which they take their title. The bulls were very grand, the cows more useful; but if we were to select a class, it would be the three-year-old heifers. If we were to go yet further, and name three animals as perfect specimens of their kind, they would be Mr. Douglas' shorthorn heifer Venus de Medicis, Mr. Drew's Milking Ayrshire cow, and Mr. Campbell's three-year-old Highland heifer. The last named of these is certainly the finest-looking Highlander we ever encountered. There never was such a head, so grand, of such wild beauty, with the wide-spreading horns, and singularly expressive eye. If Rosa Bonheur wants a fitting model for her easel, she must go to Jura. But Mr. Campbell's heifer does not "go on her head" merely. She is famously fleshed, has a capital coat, and is not only handsome, but useful. She was well supported throughout; and although we cannot see that this should be just the district for them, the Highlanders have never mustered before in such force.

Almost as much might be said for the Ayrshires, which were more particularly distinguished by the presence of two animals—the first prize bull and the first prize cow—a long way the best of a very good entry. The cow is the sweetest-looking, cleanest, prettiest marked milker that even the lads and lasses of Ayr ever had amongst them. In a little higher condition, and with her backbone not quiet so prominent, she would have been a perfect picture. There were others far better covered, but none had her fine appearance or graceful beauty. Her owner Mr. Drew, had a coarser cow, also the first of her class, which has occasionally had the preference of the favorite here; but for her especial purpose—the dairy—there was nothing to compare with the milking cow. The black polled cattle were not very numerous, but there were some well-known animals amongst them. The Angus cows were especially good; Mr. Collie's first having been second at the great show at Aberdeen last year. The cross-breeds were chiefly noticeable for the presence of Shorthorn blood in them. Almost all of them had some of it, while in some it was so strong that they might have been pardonably taken for pure bred beasts. In fact they frequently were, and many a visitor, without going to the trouble of consulting his catalogue, put them down as "just another lot of Shorthorns."

In the sheep as with the cattle the Scotch kinds were very superior. In truth, neither the Leicesters nor the Southdowns showed to much advantage. The former had no uniformity of character, and English and Scotch judges would have differed materially in settling the awards. The Scotch Leicester is, indeed, of quite another sort of sheep, and occasionally, we should say, anything but a pure one. The Southdowns were completely overridden by the presence of the prize sheep from Warwick. The Society was particularly anxious that the Duke of Richmond should make some entries and his Grace was kind enough to do so. He sent not only some from his flock at Gordon Castle, but others from Goodwood. Those from Sussex included the famous first prize shearling ewes, and the comparison was almost too cruel. Even the Duke's own Scotch sheep suffered materially, and nothing of course had a chance with the grand, handsome animals that made so great a sensation at Warwick. It is remarkable that the Sussex shearling ram is a twin, and although both were reared, the brother

has never yet been exhibited, but has been kept at home less for ornament than use. These sheep, it appears, do not go back to the Babraham cross, but, as the shepherd phrases it, "are bred all away from Mr. Webb." The other long-wools, that is to say Cotswolds, are in the hands of the Duchess of Gordon, Lord Kinnaird, and Mr. Skirving; but Mr. Handy helped them out with a few sheep sent direct from their native hills.

The small show of pigs was also greatly "assisted" by exhibitors from over the Border. Mr. Harrison sent his prize Warwick boar, and the prize again here. Mr. Mangles entered a couple of his white sows, that have each in turn been winners at the Yorkshire meetings, and that with a boar, and a pen of three young pigs, were all more or less successful now. Then Mr. Robinson had an extraordinary sow, that for size and breeding was quite the marvel of the meeting. She is within a month of pigging, and in her present high condition would threaten to have a hard time of it. But she was not the only sow exhibited in this state—that is as really breeding. Mr. Skinner, of Aberdeen, showed a pen of three sows, declared to be but seven months and a half old, one of which is now very near pigging. This is early maturity with a vengeance, and her owner was repeatedly complimented upon so extraordinary an achievement. The general company appeared to take great interest in this section, and Mr. Mangles' Bendigo breed were in considerable request, all he had for sale being readily disposed of at long prices. But they are really a very pretty useful pig. There was also a Butter Show, as well as one of Poultry, but the entries for either were not large."

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Rust in Wheat.—The London *Prototype* publishes the following somewhat curious statement. So far as our experience goes it tends to an opposite conclusion to that of the writer; for we have found that wheat imported from the British Isles was late in maturing and peculiarly liable to rust for the first year or two. "A fact has come to our knowledge, fully authenticated, which bears directly upon the subject of rust. A merchant of standing in this city forwarded to his brother, a farmer in East Lothian, Scotland, four bushels of Canadian wheat, to experiment upon as seed grain. The wheat was sown in a field along side of the native Scotch wheat; and the harvest has exhibited the astounding result that there is not a single kernel of the wheat sown from the Canadian seed, that is not utterly destroyed by rust, while the wheat growing in juxtaposition with it, subjected to the same climatic influences, and planted upon the same soil, will yield fifty bushels to the acre. The continuation for some time of a humid atmostphere, accompanied with heat at a peculiar crisis in the growth of the wheat plant, is regarded as the cause of rust. In the British Isles the climate is peculiarly moist and sultry, and during the summer months the weather is frequently such as would produce a universal blight of wheat in Canada by rust. From the experiment to which we have referred, it would appear that the same results which we would experience in Canada from the climatic influences to which the wheat is exposed in Scotland, has happened to the wheat grown from Canadian seed, while the crop produced from seed of native growth has been able to resist them, and escape the rust. The practical inference to be deduced is this—that our farmers should make the experiment of importing for seed purposes samples of wheat grown in different parts of Scotland and England. In this way we might be able to avoid one of the enemies to which this valuable crop is exposed."

Wheat Growing in Central New York.—We are glad to learn that the farmers of Central New York have cause to be encouraged relative to wheat culture, and to know that some of the best of them concur in the views we have expressed as to what is requisite to success. In a recent letter the Hon. George Geddes, of Fairmount, Onondaga County, writes us as follows:—"I have read the slips enclosed in your letter, [including article entitled 'Wheat Culture—Evading the Midge,'] and find our views alike in regard to raising wheat. Last year we raised on ten acres of land (having over a dozen large apple trees and two other large shade trees on it,) 410 bushels of Mediterranean wheat,—which variety has become equal in quality to the old red chaff bald, but has less grains in a head. If Mediterranean wheat is sown on rich, dry land by Sept. 10th, in an ordinary season, we may expect 25 bushels to the acre.—*Rural New orker.*

VALUE OF RYE AS A GREEN CROP—IMPORTANCE OF CULTIVATING IT EXTENSIVELY. The real value of rye, either as a white or green crop, is far better understood than it was a few years ago. Its remunerative properties as a grain crop, are not inferior to its usefulness as a green one, but it is to the latter that we would direct the farmer's attention at present. Rye is much better suited to swamp land than wheat, and a portion of peat ashes has been found an excellent manure for it. Every farmer should cultivate rye, as it is a more certain crop than wheat, and with the exception of the latter is of all other cereals the best adapted for supplying the "staff of life." When cultivated as a green crop, it has many excellent properties to recommend it to the farmer's favor. It comes in early, when grass is scarce. It will grow in almost any kind of soil, and it is so hardy that it is able to stand the winters of this climate. It also yields a very large amount of forage, and there is one quality which it possesses, which renders it more desirable than any other forage, especially to those who have milch cows; that is, it causes animals fed on it to give a greater quantity of milk than any other sort of food. We lately advised farmers to introduce vetches as a forage crop, and we have no doubt but they will succeed well in this state. European farmers generally sow rye in August and September, when they have cut away the vetches; they do not sow the entire crop at the same time, but prefer allowing a fortnight or more to intervene between the sowings, and by this means they have a succession, the earliest sown part being the soonest fit for use in the spring. Breeders of sheep have found a field of rye extremely valuable for recruiting the strength of their flock after a severe winter, and whether the crop is used as a pasture for sheep, or cut green as soiling for horses and cattle, it is a valuable addition to the forage and should be cultivated by every farmer.

These remarks are intended not to discourage the farmer from raising rye as a grain crop, but merely to show its utility for the feeding of stock. The white rye which we have noticed in another column, is said to produce flour very little inferior to wheat. We advise farmers to procure seed of this new and improved variety, as it produces well and ripens early. There is nothing of more importance than the selection of the best seed of every kind, and we are glad to see an increased anxiety on the part of farmers to sow none but the most approved varieties of grain.—*Detroit Tribune.*

WINTER BARLEY.—The Haldimand *Tribune* publishes the following letter in reference to this grain:—

TO DUNCAN MCFARLAND,
PORT ROBINSON.

NIAGARA, August 5, 1859.

SIR,—In reply to your friend's enquiries respecting Winter Barley:—In the first place, let him be particular in obtainining the real Winter Barley. Some of my neighbours have been imposed upon by persons selling them Spring for Winter Barley, saying, "it is all the same—here is Spring and Winter Barley, the same as Spring and Winter Wheat." As for soil, my opinion, formed on what experience I have had for two years, is, that any soil that will produce good wheat will answer. The principal art is in good cultivation. Sow as early in September as possible, that it may obtain a strong root. Summer fallow is preferable, or on dry mellow land. As to the quantity of seed, farmers differ; from one and a half to three bushels per acre.—My yield has been on fallow, sixty, and on corn land forty bushels per acre. The corn land was equally as good as the fallow. What made the difference in the yield, in my opinion is, that the latter was sown on the 1st, and the former on the 20th of September. I believe, under any circumstances, it will yield double the quantity of Spring Barley. It is ripe the 1st of July before the midge strikes it. We sell it here for one dollar per bushel; but if there would be one hundred bushels wanted at your place, or at an equal distance, I will deliver it at the same price, in time for sowing, and warrant it the real Winter Barley.

Yours, respectfully,

JOHN MCCARTHY.

PROLIFIC YIELD.—We are informed that two bushels of the Kentucky (blue stem) wheat, sown on the farm of Mr. John Wallace, produced no less a quantity than forty-five bushels. The two bushels were sown and kept entirely separate from other wheat in order that its producing qualities might be properly tested,—certainly it has stood the test well.—*Ayr Observer.*

Guelph August Cattle Fair.—The Monthly Fair for the sale of cattle took place on Wednesday last; on which occasion there was a large quantity of excellent stock on the market grounds, and a fair proportion of buyers. The best of the stock was picked out and purchased rapidly during the forenoon, and all that was left unsold was quite unfit for the butcher. The fat stock brought from $4 to $5 per cwt., live weight—being an advance over the prices for similar stock at the fair in July. We heard of one person who bought a large quantity of cattle at the July Fair, and re-sold the whole of it on Wednesday last, obtaining a clear gain of 25 per cent. Good milch cows also sold readily, at fair prices; indeed all the stock left on the ground at the close of the fair was scarcely worth purchase at any price.—*Wellington Mercury, Aug.* 6.

"Weeds in the Corn."—A western cotemporary speaks of a cornfield seeming to have been left by the owner to take care of itself. "The weeds have invaded the field, and the only good they are possibly doing, is that they act as a mulch to plant, which would otherwise suffer from the dry weather." Rather questionable "good," the mulch of living weeds. We find the soil far drier in the cornfield, where covered with weeds, than where cleanly cultivated, and believe such is always the case.

Surprising Yield of Wheat in Reach.—On Tuesday last we were informed that a farmer in Reach had a field of about 15 acres of wheat, which did not, whilst standing, appear to be unusually heavy; but after thrashing, he was surprised and delighted to find it yield 57 bushels to the acre! Neither is this a solitary instance; for we understand the average yield of fall wheat in this township will be from 30 to 50 bushels to the acre.—*Ontario Observer.*

Prairie Farming in America, with Notes on Canada and the United States—by James Caird, M. P., Author of English Agriculture, &c.—We took up this work, expecting, from the reputation of the author, to find a capital work on American Agriculture—but were very much disappointed. New-York and Canada were very summarily disposed of. The notable crops in New York were the *corn fields* on the railroad between Albany and Troy. When the Prairies were reached, and the Illinois Central Railroad, we found a full and excellent description of the prairie region, with full details for the English emigrant—and we surmised that Mr. C. was writing a work, as one of his predecessors had done, for money. A late Mark Lane Express, June 13th, contains an advertisement, "Prairie Lands in America for Sale: 1,300,000 acres lying along 700 miles of railway, and, apply to *James Caird*, Esq., M. P. (who has the *sole agency* in the United Kingdom for the sale of these lands), at 6 Sergeant's-inn, Fleet street, London." We think the English farmers emigrating to this country would consult their interests by reading some other work besides this before they settle down to farming.—*Journal New York State Agricultural Society.*

## Horticultural.

Superphosphate of Lime for Trees.—Phosphoric acid has a mysterious influence on the development of roots, causing plants to throw them out vigorously. The most convenient way of employing this substance is in the form of superphosphate of lime—that is, a mixture of oil of vitrol and burnt bones. This compound, rich in the acid in a soluble state, mixed with a little dry mold, will be found a fertiliser of great use in transplanting trees. But it must be used in moderation, for plants, like animals, may be injured as much by overfeeding as by starvation.

Cherries.—Cherries were first planted in Britain 100 years before Christ; and afterwards brought from Flanders, and planted in Kent with such success that an orchard of thirty-two acres produced, in the year 1540, 1,000lb! Cherries were cried about the streets of London, and sold, tied upon sticks, as at the present day, two centuries and a half since:—

"Cherry ripe, ripe, ripe, I cry,
Full and fair ones; come and buy."—*Herrick.*

Peacham, author of the "Complete Gentleman," published in the reign of James I., who was reduced to poverty in his old age, and chiefly subsisted by writing little penny books for children, says—"July 1 would have drawn in a jacket of light yellow, eating

*cherries*, with his face and bosom sunburnt." The famous cherry orchard just mentioned was planted at Teynham, near Feversham; from which orchard much of Kent was afterwards supplied. "No English fruit is dearer than cherries at first, cheaper at last, pleasanter at all times; nor is it less wholesome than delicious. And it is much that, of so many feeding so freely on them, so few are found to surfeit." According to Busino, Venetian ambassador in the reign of James I., it was a favorite amusement in the Kentish gardens to try who could eat most cherries. In this way, one young woman managed to eat 20 lb of cherries, beating her opponent by 2½ lb—a severe illness was the result. Busino finds fault with the English cherries, which are, however, praised by Fynes Morrison. Kent still maintains its superiority in the number and flavor of its cherries; the chief orchards are in the parishes on the borders of the Thames, the Darent, and the Medway; and delightful is the scene in early spring when—

> Sweet is the air with the budding haws; and the valley stretching for miles below,
> Is white with blooming cherry trees, as if just covered with lightest snow.

—"*Things not generally known.*" By JOHN TIMBS.

# Miscellaneous.

## CURRANT WINE.

People think that they must have a "little wine for their stomach's sake." Good wine—wine that is wine, and not a compound of new rum, logwood and sugar of lead, is often useful as a gentle stimulant, but not absolutely necessary in all cases. As it is almost an impossibility to get pure wine, we recommend to those who have the means to manufacture currant wine, and let it be pure currant wine, using nothing but pure currants, pure water and pure sugar. Keep out your raw alcohol and your poisoned brandy.

We have heretofore given directions for making this article. We now publish the following which we borrow from the *Massachusetts Ploughman*:—

There is no great difficulty in making good currant wine. White sugar or brown sugar may be used. The better the quality of the sugar the better the wine will be. The idea that any sort of sugar will do for wine is pretty much exploded.

It is now also said that white currants make a much nicer wine than the red currants. Will some producer try the white currants and report progress:—

CURRANT WINE.—This article as usually manufactured, is rather a cordial than a wine, and is entirely inferior to the common wine; but when properly made, it will be a very superior, healthful beverage, particularly for summer drink, when fully diluted with water.

We have experimented carefully on the making of currant wine, and the following will be found to give a result which we have found no difficulty in selling in large quantities at $1 per gallon.

Before pressing the juice from the currants pass them between a pair of rollers to crush them, after which they may be placed in a strong bag, and they will part with the juice readily by light pressure, such as a common screw, heavy weights, &c. To each quart of juce add three pounds of double refined loaf sugar—single refined sugar is not sufficiently pure—then add as much water as will make one gallon. Or in other words, suppose the cask intended to be used to be 30 gallons. In this put 30 quarts of currant juce, 90 lbs of double refined sugar, and fill the cask to the bung with water; roll it over until the sugar is all dissolved. This will be told by its ceasing to settle in the barrel. Next day roll it again, and place it in a cellar where the temperature will be sure to be even. Leave the bung loose for the free admission of air. In the course of one or two or three days, fermentation will commence. By placing the ear to the bunghole a slight noise will be heard such as may be observed when carbonic acid is escaping from champaign or soda water. Fermentation will continue for a few weeks, converting the sugar into alcohol. As soon as this ceases drive the bung in tightly, and leave the cask for six months, at the end of which time the wine may be drawn off perfectly clear, without any excess of sweetness.

## FRUIT WINES.

Wine may be made from the currant, rhubarb, strawberry, blackberry, raspberry and gooseberry, of excellent quality. Inferior but quite palatable wines may be made from parsnip and many other roots. While we admit that the true wine must be made from the grape, still, for the want of a more appropriate name for beverages made from fruits other than the grape, we call them wines.

The great mistake in these manufactures is in the use of sugar of an inferior quality; double refined is not sufficiently pure to manufacture either of these wines of the best quality; treble refined sugar should be used—that of inferior kind contains gum, and after the fermentation this gum becomes fetid, and its disagreeable odor has to be overcome at the expense of the odor of the fruit, and, therefore, it should never be used. Brown sugar, no matter of how good a quality, will not make wine, for when fermented that portion which is like molasses in flavor, if separated from the sugar, as in the process of refining, becomes a rank rum, and not sufficiently delicate as the preserving alcohol, of the result. When grapes are fermented, the sugar or saccharine matter is not converted into rum, but into an undistilled brandy of an unobjectionable flavor.

In making fruit wines, alcohol should never be added; a sufficient quantity will be produced by the fermentation to preserve the product, and any further addition injures the quality and arrests the fermentation. When alcohol is added, fruit wines do not improve at all by age.

The common practice of racking cider, has caused many to rack fruit wines; this is wrong. When the proper amount of the juice of a fruit, and treble refined sugar in solution, is placed in a barrel with the bung loose, in a cellar of even temperature, fermentation will readily commence, and will proceed until the sugar or a portion of it is converted into alcohol, when it will cease. The buffy coat which rises to the surface will then settle and attach itself to the cask; the bung should then be driven in, and in six months the wine may be drawn off and bottled. No alcohol will be necessary to keep it.—*Working Farmer.*

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To Make Butter in Five Minutes without a Churn.—A correspondent highly recommends the following recipe:—After straining the milk, set it away, for about 12 hours, for the cream to "rise." (Milk-dishes ought to have good strong handles to lift them by.) After standing as above, set the milk, without disturbing it, on the stove; let it remain there until you observe the coating of cream on the surface assume a wrinkled appearance, but be careful it does not boil, as should this be the case the cream will mix with the milk and cannot again be collected. Now set it away till quite cool and then skim off the cream, mixed with as little milk as possible. When sufficient cream is collected proceed to make it into butter as follows:—Take a wooden bowl, or any suitable vessel, and having first scalded and then rinsed it with cold spring water, place the cream in it. Now let the operator hold his hand in water as hot as can be borne for a few seconds, then plunge it in cold water for about a minute, and at once commence to agitate the cream by a gentle circular motion. In five minutes or less, the butter will have come, when, of course, it must be washed and salted according to taste; and our correspondent guarantees that no better can be made by the best churn ever invented. To those who keep only one cow, this method of making butter will be found really valuable; while quite as large a quantity of butter is obtained as by the common mode, the skim-milk is much sweeter and palatable. In the summer season it will usually be found necessary to bring the cream out of the cellar (say a quarter of an hour before churning) to take the excessive chill off; in winter place the vessel containing the cream over another containing water to warm it; then continue to agitate the cream until the chill has departed. Before washing the butter, separate all the milk you possibly can, as the latter will be found excellent tea-cakes. Butter made in this manner will be much firmer, and less oily in hot weather than when made in the ordinary way.—*Scientific American.*

Timber from the County of Perth for England.—For some months past the agents of a Company in Quebec, have been constantly purchasing all the heaviest timber in this neighbourhood and sending it down to the St. Lawrence by the Grand Trunk Railway, after which it is constructed into rafts and floated down to Quebec, where it is culled and disposed of for the English market.—*Stratford Beacon.*

Cotton Manufacture in Canada.—Few of our readers, perhaps, are aware that a beginning has been made in the manufacture of cotton goods in Canada; that there is a Cotton mill, in fact, in full operation within three hours ride of Toronto, producing a certain description of goods at lower rates than similar kinds can be offered at by American manufacturers. The Thorold mill is the one we refer to. It is situated on the Welland Canal, about four miles from St. Catherines; and we yesterday had an opportunity of inspecting a piece of unbleached cotton—good, serviceable "factory"—which the enterprising manufacturers, Messrs Nutty & Woodward, are putting into the market. The staple comes to Thorold in bales, as put up on the plantations of the south, and undergoes all the requisite processes on Nutty & Co.'s premises. They have some eighteen looms at work, turning out about 600 yards per day; and they state that the facilities for the manufacture afforded by the water privileges of the Welland, enable them to undersell foreign producers. The Thorold article, we think, can be sold at nine cents per yard; being one cent lower than the lowest American. Since 1857, large quantities of batting have been manufactured by the firm; the piece of factory we saw yesterday being a part of the first production of that class of goods. At present the firm buy their cotton at New York. Enlarged monetary facilities would enable them to purchase at Memphis, the best American market, whence the commodity could be brought via Cincinnati at a cost which would give the Canadian owner of water power a decided advantage over foreign manufactures. The enterprise reflects great credit upon Messrs. Nutty and Woodward, who have succeeded in showing that Upper Canada already possesses facilities for the cultivation of an important manufacturing interest.—*Globe.*

Causes of Indigestion.—It is certain that if the food be not well masticated and saturated with saliva, we must have the powerful gastric juice of a dog or a lion, to compensate this deficiency; otherwise a larger proportion of the unchanged food will be transmitted to the intestines than they can well manage, or will lie like a load oppressing the stomach. The starch will descend in lumps, and although much of it will be dissolved by intestinal digestion, some will pass away undigested. If the secretion of gastric juice be languid, or if that fluid be not sufficiently acid, chymification will be laborious and painful. If the bile rise in the stomach, digestion will cease; if the secretion of bile be too scanty, the food will lie like a burden, and produce diarrhœa or sicknesss; and so on to the end of the chapter. Let there be only a little less acid, or a little more alkali, each of which depends on complex conditions, and digestion, what to the young and healthy is as easy as it is delightful, becomes the source of misery. Ill-selected food is one source of these evils; want of fresh air and exercise another. The action of the liver is particularly affected by exercise; and all who suffer from billiousness should pay their fees to the livery stable and waterman, horse exercise and rowing being incomparably the best of prescriptions. A walking excursion, especially in mountain districts, and with resolute avoidance of walking too much, will be of great service to the dyspeptic. It is important to bear in mind, moreover, that although sedentary habits are very injurious to the digestion, they are less so than bad ventilation; those who sit long, and sit in bad air, are sure to suffer.—*Lewes' Physiology of Common Life.*

Velocity of Light.—The velocity with which light travels is so inconceivable that we require to make it intelligible by some illustrations. It moves from the sun to the earth in seven and a half minutes; whereas, a cannon-ball fired from the earth would require 17 years to reach the sun. Light moves through a space equal to the circumference of the earth, or about 25,000 miles, in about the 8th part of a second. The swiftest bird would require 3 weeks to perform this journey. Light would demonstrably require five years to move from the nearest fixed star to the earth and probably many thousand years from the most remote star seen by the telescope. Hence, if a remote visible star had been created at the time of the creation of man, it may not yet have become visible to our system.—*Encyclopædia Britanica.*

Sounding Shells.—There are few persons who cannot remember the childish wonder with which they were filled, when a sea-shell was first placed to the ear; and the still greater wonder they experienced when told that the strange resonance which they heard was the roar of the sea; this being the common explanation given to children. There are, doubtless, many adults persons who do not know the phenomena of the sounding shell. It is caused by its hollow form and polished surface; these enable it to receive and return the beatings of all the sounds which tremble in the air that surrounds it.

## FEEDING HORSES.

In the remarks on the feeding of horses which we last made, we estimated the cost of the best kind of food per week for hacks at 10s; harness horses from 11s to 12s; and for hunters 13s 6d each, exclusive of litter. We propose now to show the saving which may be effected in the management of the two first kinds; for no one will dream of adopting in the last any change which is founded upon £ s. d. only, the object being with hunters and racehorses to get them into the highest possible condition, without any considerations of economy, excepting as to the best mode of obtaining the hay and corn upon which they are fed.

On referring to the extract from the report of M. Renault we find that each horse of the London General Omnibus Company, fed on the new plan, consumed daily of bruised oats 16 lbs., or 9s 7½d per week; hay 7½ lbs., or 2s per week; straw 2½ lbs., which, with the labor of bruising oats and chaff-cutting, would come to about 1s—altogether 12s. 7½d. Now, contrasting this with the other plan adopted by the company, we find the quantity of unbruised oats consumed daily to be 19 lbs., costing weekly 11s 8d, which added to 3s 6d, the cost of the hay, comes to 14s 2d, or about 1s 6d per week more than the cost of the bruised oats and cut provender, which kept an equal number of horses in as good condition. These quantities are, however, much greater than the usual allowance in private stables, which may be stated as follows, taking the scale which we gave last week as the point of comparison. Thus, supposing hacks to require 11⅓ lbs. of unbruised oats and 12 lbs. af hay daily, they will do nearly equally well on the following rations, viz.: bruised oats 10 lbs. per day, or per week 1⅓ bushel, costing 6s 1½d; hay 7 lbs., straw, 2⅓ lbs., with cutting and bruising per week, 3s—altogether 9s 1½d, effecting a weekly saving of 10½d. There is an outlay of from £8 to £10 required for the bruising and chaff-cutting machines, the interest on which will with repairs, amount to about 3d per week; but as in the above estimate the cutting and bruising have been calculated at about that sum, and as in private stables no additional labour is required, the one may fairly be set against the other, and the saving may be said to be something under a shilling per week. In well-managed stables it is customary to cut the chaff once or twice a week, for if larger quantities are done at a time they become musty, and are not relished by the horses. The oats should be bruised daily, or every other day, and should not be mixed with the chaff until they are just about to be consumed.

Such is the ordinary plan pursued in stables conducted on economical principles in this country; but of late years a still cheaper food has been tried and found to answer well. This consists in the substitution of Indian corn and beans for oats; and the mixture of these two appears to agree remarkably well with the horse. In America Indian corn is very generally given without beans, but we doubt whether it would suit the animal in this climate. We have never known it tried alone; but the experiment with it mixed with beans has come within our observation, and, as far as a continuance for six months may be considered a sufficient test, it has been fully successful. The horses fed on it were worked quite up to the average in private stables, and their condition was excellent, showing the blooming coats and hard muscle, slightly inclining to fat, which is what is desired, in the hack and carriage horse. It was found that 7 lbs. of crushed Indian corn and 1 lb. of split beans were quite sufficient, and produced as good an effect as 10 lbs. of crushed oats; and as the price of all three of these varieties is as nearly as may be 1d per pound, the saving effected is 2d per day, or about 1s 2d per week. A closer calculation may be made which would give the price to a fraction, but for ordinary purposes the above will, we think, be found most convenient.—Whenever Indian corn is adopted for horses, bran mashes must be given twice a week, at a cost of about 2d, so that the actual weekly outlay for the food of horses on this plan may be set down at about 8s 1½d. We do not ourselves vouch for the correctness of the facts relating to the use of Indian meal, but we believe that the experiments have been carefully conducted, and we are quite sure they have been related in good faith. The subject is, at all events, worthy of a further trial, and we shall be happy to record any experiments made by our readers with this kind of grain, which is now so largely imported into England. We believe it is too hard to be readily split in the oat-bruising and bean-splitting machine as usually sold, but it can always be purchased in the state known as "hominy," which is that in which it was employed in the instances to which we have alluded.—*Field.*

A Queer Enterprise.—We have been informed that some Americans have lately engaged in a rather questionable enterprise, that of carrying away the leached ashes from the potash and soap factories in this city, to Oswego, professedly to be used as *manure*. Query—May not these ashes come back to Canada in the shape of water lime or plaster? Parties who deal in those articles had better keep a sharp look-out when they purchase. Perhaps our insinuation is undeserved, and our cousins really intend to apply the ashes to their over-rich lands, as their effect on the soil is the means of adding to its fertility, except under a peculiar condition. Now, it strikes us they might find abundance of waste ashes in the towns and villages in Oswego county, procurable at much less cost than taking them from Canada; but that is their business, and doubtless they understand what they are about, and "calculate" what their enterprise will pay. How comes it, farmers of Kingston and Pittsburg, you have not found out the value of ashes as a manure, and allow strangers to take advantage of you in the manner stated? It is evident you are "behind the intelligence of the age," and need a little more agricultural teaching to teach you the many resources you possess for improving and increasing the productive qualities of your lands. Depend upon it our Yankee neighbors who come here for leached ashes have patronized the *Genesee Farmer* and the *Albany Cultivator;* and the best advice we can give you is to lose no time in subscribing to the *Canadian Agriculturist*, published at Toronto, or the *Farmer's Journal*, published at Montreal.—*Kingston News.*

Summer Sours.—Physiogical research has fully established the fact that acids promote the separation of the bile from the blood, which is then passed from the system, thus preventing fevers, the prevailing diseases of summer. All fevers are "bilious," that is, the bile is in the blood. Whatever is antagonistic to fever is "cooling." It is a common saying that fruits are "cooling," and also berries of every description; it is because the acidity which they contain aids in separating the bile from the blood, that is, aids in purifying the blood. Hence the great yearning for greens and lettuce, and salads in the early spring, these being eaten with vinegar; hence also the taste for something sour, for lemonades, on an attack of fever. But this being the case, it is easy to see, that we nullify the good effects of fruits and berries in proportion as we eat them with sugar, or even sweet milk, or cream. If we eat them in their natural state, fresh, ripe, perfect, it is almost impossible to eat too many, to eat enough to hurt us, especially if we eat them alone, not taking any liquid with them whatever. Hence also is buttermilk or even common sour milk promotive of health in summer time. Sweet milk tends to biliousness in sedentary people, sour milk is antagonistic. The Greeks and Turks are passionately fond of sour milk. The shepherds use rennet, and the milk-dealers alum to make it sour the sooner. Buttermilk acts like watermelons on the system.—*Hall's Journal of Health.*

The Tomato.—Dr. Bennett ascribes to the Tomato the following important medical properties:—1st. That the Tomato is one of the most powerful aperients of the liver and other organs; where calomel is indicated, it is probably one of the most effective and the least harmful remedial agents known to the professions. 2nd. That a chemical extract will be obtained from it, that will supercede the use of calomel in the cure of disease. 3rd. That he has successfully treated diarrhœa with this article alone. 4th. That when used as an article of diet it is almost sovereign for dyspepsia and indigestion. 5th. That it should be constantly used for daily food; either cooked, raw or in the form of catsup, it is the most healthy article now in use.—*Maine Farmer.*

Tobacco for Boys.—A strong writer administers a wholesome dose to the boy chewers and smokers, assuring them that tobacco has spoiled and utterly ruined thousands of boys, inducing a dangerous precocity, developing the passions, softening and weakening the bones, and greatly injuring the spinal marrow, the brain, and the whole nervous fluid. A boy who early and frequently smokes, or in any way uses large quantities of tobacco, never is known to make a man of much energy of character, and generally lacks physical and muscular as well as mental energy. We would particularly warn boys who want to be anybody in the world, to shun tobacco as a most baneful poison.—*Exchange.*

Potato Pudding.—Boil one quart of potatoes soft, peel and mash them, and rub them through a sieve; half a pound of fresh butter melted, as much sugar, beat them well together, beat six eggs, stir in one glass of brandy, half a pound of currants.—Boil half an hour, or bake in a crust.

Cultivation of Willows.—We cut the following paragraph from the Boston *Commercial Advertiser*. There is scarcely any crop which could be made so profitable in Canada, upon land suitable for it, as the willow for the basket maker, and that it will succeed admirably may be seen by a visit to the grounds of Mr. Geo. Leslie, Toronto Nursery Gardens, who has had a bed of it under cultivation for some years:

"The willow used in making willow ware in this country, was formerly imported almost entirely. At present a large quantity, estimated by some at one-half the quantity consumed, is grown in the United States, and chiefly, as we understand, in Pennsylvania, Ohio and Kentucky. A manufacturer of willow ware in Ripon, Wisconsin, grows the Welsh willow on four acres of land, near that place, and this is perhaps the only place in the United States where it is cultivated. The present is the second year that he has cut his willow, and from his four acres he obtained six tons, four of which he sold in St. Louis at $100 a ton. The importation last year of willow, unmanufactured, was valued at $35,141, of which $21,192 was from France, and $11,708 from Belgium. The manufactures of willow imported the same year were valued at $112,725, of which $68,902 was from Bremen, $34,126 from France, $6,280 from Hamburg, and $2,029 from England. Most of both these imports are received at New York. The imports of the previous year were larger, viz: $175,484 of manufactures of willow, and $41,773 unmanufactured; and were, respectively, in about the same proportion from the several countries as in the last year."

The Natives of Africa and the Apes.—The natives of Africa have an idea that the Gorillas, and other large apes, are really men; but that they pretend to be stupid and dumb, in order to escape impressment as slaves. Work, indeed, seems to be the *summum malum* in the African mind, and a true African never works if he can help it. As to the necessary household labours, and the task of agriculture, he will not raise a finger, but makes his wives work, he having previously purchased them for that purpose. In truth, in a land where the artificial wants are so few—unless the corruptions of pseudo-civilisation have made their entrance—and where unassisted nature is so bountiful, there is small need of work. The daily life of a "black fellow" has been very graphically described in a few words. He gets a large melon; cuts it in two and scoops out the inside; one half he puts on his head, he sits on the other half, and eats the middle.—*Routledge's Illustrated Natural History, by the Rev. J. G. Wood.*

Curious Electrical Phenomena.—From the watering-place we first proceeded to a desolate plateau, covered with grey bushes and scanty grass, where we saw large herds of antelopes. In a few hours we reached a level tract, upon the bare clay soil of which grew here and there, an *Opuntia arborescens*. In the distance rose the Limpia Mountains, to which our road lay. At their foot we observed some columns of smoke—Indian signals, as we ascertained some days later. During the journey the sky was overcast with dark clouds, which, with a sultry air, seemed to indicate the approach of a thunderstorm. Some large drops of rain fell; a violent gale filled the air with such clouds of dust that we were almost stifled, and our caravan was quite darkened. Later, when night came on, our clothes and the harness emitted electric sparks when stirred: every lash of the whip on the animals' backs was a small streak of fire. I have often witnessed similar electrical phenomena in the interior of North America, and have before spoken of them, but have never seen them exhibited in so striking a manner as on this day (Feb. 24) on the plain of the eastern foot of the Limpia Mountains: sparks from my fingers were at times quite perceptible when I touched any part of my clothes. I may here observe that, coinciding with these electrical phenomena, I repeatedly felt a sudden rheumatic affection, which all at once paralysed, temporarily, my left leg, and gave me a violent headache. The former attack, happily, never lasted above one or two hours.—*Seven Years' Travel in Central America, &c., by Julius Froebel.*

Science of Milking Cows.—It is a matter of great importance that the milk should all be drawn from the cow's udder. Careful experiments made in England show, according to a report recently published, that "the quantity of cream obtained from the last drawn cup from most cows, exceeds that of the first in a proportion of twelve to one." Thus a person who carelessly leaves but a teacup full of milk undrawn, loses in reality about as much cream as would be afforded by four or six pints at the beginning; and loses, too, that part of the cream which gives the richness and high flavor to the butter.

Geology as a Branch of General Education.—Nor is it alone the miner, engineer, builder, farmer, landscape gardener, and painter that can turn to profitable account the deductions of geology. The capitalist who speculates in land, the emigrant, the traveller and voyager, the statistician and statesman may all derive assistance from the same source, and bring a knowledge of its facts to bear on the progress of their nations. So also the holiday tourist, the military officer stationed in distant countries, and others in similar situations, if possessed of the requisite knowledge, may do good service, not only to the cause of science, but to the furtherance of our industrial prosperity. Indeed we do not affirm too much when we assert that had one tithe of those who, during the last fifty years, have travelled or settled in America, Australia, New Zealand, India, and other countries, been possessed even of a smattering of geology, these countries, as to their substantial wealth and social progress, would have been in a very different position at the present day. Their gold fields and coal fields, their mines of iron, copper, and other metals, take rank among the most important discoveries of the present age; and as the spirit of civilization is now evolved and directed, no progress can be made without those mechanical appliances to which the possession of coal and iron is indispensable, no facility of commercial intercourse without a sufficiency of gold, which has hitherto formed the most available medium of interchange. The assistance which geology has also conferred, and the new light its deductions have thrown on the other branches of natural science, are not among the least of its claims to general attention. The comparatively recent science of physical geography, in all that relates to the surface configuration of the globe—its climate and temperature, the distribution of plants and animals, and even touching the development of man himself as influenced by geographical position—can only lay claim to the character of a science when treated in connection with the fundamental doctrines of geology. So also in a great degree of botany and zoology; the reconstructing, as it were, of so many extinct genera and species has given a new significance to the science of life; and henceforth no view of the vegetable or animal kingdom can lay claim to a truly scientific character that does not embody the discoveries of the palæontologist. In fact, so inseparably woven into one great system of life are fossil forms with those now existing that we cannot treat of the one without considering the other; and can never hope to arrive at a knowledge of creative law by any method which, however minute as regards the one, is not equally careful as concerns the other. Combining, therefore, its theoretical interest with its high practical value—the complexity and nicety of its problems, as an intellectual exercise, with the substantial wealth of its discoveries—the new light it throws on the duration of our planet and the wonderful variety of its past life, with the certainty it confers on our industrial researches and operations—geology becomes one of the most important of modern sciences, deserving the study of every cultivated mind, and the encouragement of every enlightened government.—*Advanced Text-Book of Geology*, by D. Page, F.G.S.

Artesian Wells.—The artesian well at Charleston, S. C., is tubed to the depth of 1320 feet and supplies 100,000 gallons every 24 hours. Its temperature when it reaches the surface is about 83 degrees of Fahrenheit, its taste slightly alkaline, and it is thought to have medicinal qualities. Glass deposited in it for a few hours receives an irridescent coating similar to that of the artesian well of Grenelle, near Paris. A trough near the well, on one of the great thoroughfares of city, is supplied with this water for the use of horses, which manifest a singular avidity for it, many of them refusing to drink at their stables in the morning in the expectation of receiving their supply at the trough on their way to their stands.

Mechanical Horse-Tamer.—With a philosophical indifference to the lofty teachings in horse taming as practised by Professor Rarey (with whose feats the whole world resounded in 1858), J. G. Bunting, of London, has taken out a patent for what he calls a "Mechanical Horse-tamer." It consists of a post driven into the ground and having at its upper end a stout pin, to which are secured two horizontal poles. Upon the outer end of these are attached axle-arms to carry heavy cart wheels and they are arranged to form a sort of cradle in which the horse to be tamed is fastened by suitable straps. He is unable to plunge by the weight of the wheels, or to lie down on account of the under straps, and he is prevented from running backwards by a prop which is fixed to the hind pole. In this contrivance the unruly animal is coerced into obedience; but as to the extent of his training or how long it takes to *break him in*, we are not informed.

## WHY DO WE OIL OUR BOOTS, SHOES AND HARNESS?

The hides of animals, if dried without any previous preparation, soon become hard and stiff, and of a consistence very much like glue. If used in this condition they crack and break where bent, and their use is attended by much inconvenience. If wet they become soft but heavy, and if not dried undergo a slow putrefaction. To prevent this putrefaction, and at the same time to make them soft and pliable, they are immersed in a liquid containing tanic acid. This compound fills up partially the pores, rendering it less permeable by water, and less destructible from exposure to the atmosphese. To make it still more soft, pliable and impervious, a quantity of oil (more or less according to the use for which it is destined) is incorporated into its body. This, with the previous removal of the hair, and other manipulations of the currier, complete the manufacture.

If now kept dry, it retains its suppleness for a length of time, but evidently the oxygen of the atmosphere, that great destroyer of all organized matter, changes the oil to a gummy or waxy substance, and the leather loses its flexibility and strength. If, on the contrary, it is exposed to wet and the alkalies unite with the oil in the leather, and form soap, a substance of no use to the leather, and soon removed therefrom by its lack of adhesion.

Understanding this, the hint is at once taken, the necessity at once seen, of frequently supplying this loss of oil, if we would preserve the leather. The leather used as harness for teams and that worn upon the feet, is also subject to the action of the alkaline salts exuding from the skin in prespiration, uniting again with the oil, destroying its softening quality. Thus we see that a harness, having been long worn, becomes stiff if put in warm soft water. The pressure of the water determines to the surface a light colored saponaceous and gummy substance, the result of the combination of the oil with the sweat, which it is necessary to cleanse off to make room for, and render the leather permeable to a new application of oil.

There has been much discussion in a neighboring paper about the manner of oiling harness, one party contending for, and the other against the use of boiling water in cleansing. I shall not side with either, thinking the question is better settled by experiment than dispute. Water somewhat heated seems to be very necessary, but I think that somewhere between blood heat and the boiling point, say 125 to 160 deg. is sufficiently hot, and not injurious. We have probably all learned that our boots and shoes are more likely to be injured by the heat of the stove when wet, than when dry; but this by no means proves that immersion in boiling water is injurious, still it offers a hint for experiment. AGRICOLA.

SLEEP OF PLANTS.—Plants sleep as well as animals; the attitude that some of these assume on the approach of night is extremely interesting to those who delight to study the beautiful phenomena of vegetable life. Some plants exhibit signs of sleep more marked than others. The leaves of clover, lucerne, and other plants close as the sun approaches the horizon; and in the honey locust this characteristic is particularly striking and beautiful. The delicately formed leaves close in pairs at nightfall, and remain so until the rising of the sun in the morning, when they gradually expand to their fullest extent. It is in common garden chickweed (*stellaria medica*) that the most perfect exemplification of the conjugal love and parental care of plants is observed. At the approach of night the leaves of this delicate plant, which are in pairs, begin to close towards each other, and when the sleeping attitude is completed these folded leaves embrace in their upper surfaces the rudiments of the young shoots; and the uppermost pair (but one) at the end of the stalk are furnished with longer leaved stalks than the others, so that they can close upon the terminating pair and protect the end of the shoot.

BOX MEASURES FOR FARMERS AND PLANTERS.—A box 24 by 16 inches square and 29 inches deep, will contain a barrel—5 bushels, or 10,376 cubic inches. A box 24 by 16 inches square and 14½ inches deep, will contain half a barrel—2½ bushels, or 5,188 cubic inches. A box, 16 by 16½ inches square and 8 inches deep, will contain also a bushel, or 2,158½ cubic inches; each inch in depth holding one gallon. A box 12 by 11½ inches square and 8 inches deep, will contain half a bushel, or 1,075½ inches; each inch in depth holding half a gallon. A box, 8 by 8½ inches square and 8 inches deep, will contain half a peck, or 198⅓ cubic inches, the gallon dry measure. A box 4 by 4 inches square and 4½ deep, will contain one quart, or 62½ cubic inches.—*Perth Courier.*

Lake Superior Iron Mountains.—Recently a party took the Iron Mountain Railroad at Marquette, and ran up to the wonderful piles of mineral known as the Iron Mountains. The Jackson is fourteen miles inland, the Cleveland sixteen, and the Lake Superior eighteen. The editor of *The Lake Superior Journal* records some interesting facts about them: "Quite a new feature has been discovered in the formation of these mountains within a year or two. Previously they were supposed to be solid masses of iron throughout, whereas, in fact, the metal is found to run in veins, the principal one in each being not far from from a hundred feet in width. This detracts nothing from their value. If we suppose these veins to be only a mile in length each, and that there were only a single vein in each mountain, it would make them just as valuable as though they were solid iron, for enough is enough. The depth of these veins will probably never be measured. No metalic vein that we ever read or heard of, has been traced to its terminus in the bowels of the earth. It will be a long, long time before they will be leveled with the surface, and when they are reduced below it, in the revolution of time the business of quarying can be carried to nearly the same advantage as at present. In the first place, there will be no rock to be removed to get at the ore, and then it is a conceded point, and the deeper they go the better the ore. At the Jackson Mountain the sound of the drill hammer made sad discord with the air. Fifty or sixty men were busily engaged in drilling, blasting and removing the ore to the cars. They are making a formidable charge upon the mountain, carrying its outposts, and fast making their way to the citadel of its strength. The Cleveland Mountain presents a bold front. The rock has been mined away so as to leave a perpendicular wall some forty or fifty feet high, as we should judge. In the centre they have reached the large vein, and when the remaining rock has been cloven off plump to the vein, hundreds of tons may be thrown down at a blast. The Lake Superior mountain is run right into by the railroad at its termination point. Operations upon this mountain have been but a few months commenced, but they make a grand show for the time. The cut into the mountain for the railroad track verges so nearly to a parallel with the course of the principal vein, that it will be very easy to trundle the ore from the latter down to it, and empty the wheelbarrows right into the cars, which will certainly be a great advantage in loading. Thus, at all these mountains the way is fast preparing for greatly extending operations, and other seasons will doubtless witness greater changes than have ever yet been wrought upon them.

Trapping a Tiger.—A still more ingenious mode of tiger-killing is that which is employed by the natives of Oude. They gather a number of the broad leaves of the prauss tree, which much resembles the sycamore, and having well besmeared them with a kind of birdlime, they strew them in the animal's way, taking care to lay them with the prepared side uppermost. Let a tiger but put his paw on one of these innocent-looking leaves, and his fate is settled. Finding the leaf stick to his paw, he shakes it, in order to rid himself of the nuisance, and finding that plan unsuccessful he endeavours to attain his object by rubbing it against his face, thereby smearing the ropy birdlime over his nose and eyes, and gluing the eye-lids together. By this time he has probably trodden upon several more of the treacherous leaves, and is bewildered with the novel inconvenience; then he rolls on the ground, and rubs his head and face on the earth in his efforts to get free. By so doing, he only adds fresh birdlime to his head, body, and limbs, agglutinates his sleek fur together in unsightly tufts, and finishes by hoodwinking himself so thoroughly with leaves and birdlime, that he lies floundering on the ground, tearing up the earth with his claws, uttering howls of rage and dismay, and exhausted by the impotent struggles in which he has been so long engaged. These cries are a signal to the authors of his misery, who run to the spot, armed with guns, bows, and spears, and find no difficulty in despatching their blind and wearied foe.—*Routledge's Natural History.*

Botany and Medicine.—Of all the natural history sciences botany is the most advanced and most pursued. From an early period in man's history the attention of the observing had been directed towards the vegetable kingdom, partly from the facilities for the study of plants assembled as they are in their various kinds abundantly around us—and partly on account of their virtues real or imaginary. In the olden time the herborist and the physician were one: in nations as yet unemerged from their infant or barbarous state they are one still. The objects of the study were at first purely utilitarian. Fanciful resemblances to the forms or symptoms of disease furnish the principles of botanical arrangement. But continued enquiry, even when conducted under false

principles, led at length from empiricism to science, and the herborist ripened into the botanist. A new light broke upon him. Plants were no longer to be regarded as mere depositories of decoctions and elixirs, but were to be examined for their own sakes.—The wonders of their structure were exposed; the variety of their forms compared and classified. Their lives were written. The vital processes continually going on within their bodies were explored; their affinities with each other and with the animal kingdom investigated; and their history became a store, from whence could be drawn at pleasure numberless admirable examples of perfection of design in creation, and of the benevolence and omniscience of the Creator.—*Professor Edward Forbes.*

Preserving Eggs.—The following recipe is from a recent work on "Game Fowls," by Cooper & Vernon, of Media, Pa.:—"Dissolve some gum shellac in a sufficient quantity of alcohol to make a thin varnish, give each egg a coat, and after they have become thoroughly dry pack them in bran or saw-dust, with their points downwards in such a manner that they cannot shift about. After you have kept them as long as you desire, wash the varnish carefully off, and they will be in the same state as they were before packing, ready either for eating or hatching." The author of this work states that he has been engaged for thirty years in raising the best of game fowls, and he frequently imported eggs from Europe which he directed to be packed according to this recipe, and from such eggs he has raised chickens. This is certainly a very simple mode of preserving eggs and very superior to the common method of laying them down in milk of lime.

# Editorial Notice, &c.

The remaining portion of the reports of Agricultural Societies, together with the proceedings of the Board of Agriculture, and the Provincial Association, will appear in the Transactions that will accompany our next number.


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N. Y., September, 1859.

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DECIDUOUS—American and European Mountain Ash; Weeping Ash; American Elms; English Weeping Elms, (very graceful); Horse Chestnuts; Catalpas; European Larch; Silver and Sugar Maples; Linden; Tulip Trees; (Nursery grown and very fine,) Black Walnut and Weeping Willow.

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SMITH & HANCHETT.

Syracuse, August 1859.

## UNIVERSITY COLLEGE, TORONTO.

THE Lectures in this Institution on THE SCIENCE AND PRACTICE OF AGRICULTURE, will commence on MONDAY, NOVEMBER the 7th, and will be continued (five lectures a week), till the beginning of April, 1860. Agricultural students can attend other courses, such as Chemistry, Geology and Mineralogy, Natural History, including Botany, English Language and Literature, &c., as they may desire.

Particulars may be obtained by applying either personally or by letter to PROFESSOR BUCKLAND, University College, Toronto.

Toronto, September, 1859.

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100,000 Houghton's Seedling Gooseberries.
50,000 Currants, fifteen varieties, remarkably strong.
200,000 Raspberries, fourteen varieties, all fine plants.
50,000 Rhubarb, Linnæus, and Cahoon's Mammoth; unquestionably the best two varieties.
100,000 New Rochelle (Lawton) Blackberries.
50,000 Norway and American Spruce, Canada Balsam, and American Arbor Vitæ; splendid trees, from 3 to 6 feet high; may be had at a bargain.
5,000 Tulip trees, one of the most beautiful and hardy of American forest trees.
1,000,000 Apple Seedlings, 1 and 2 years old.
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100,000 Plum do 1 year old.
250,000 Cherry do 1 year old.

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Toronto, July 30, 1859.

THE

# Canadian Agriculturist,

AND

## JOURNAL OF THE BOARD OF AGRICULTURE

OF UPPER CANADA.

VOL. XI. TORONTO, NOVEMBER, 1859. No. 11.

## ECONOMY OF FODDER.

The hay crop throughout most parts of Canada, and a great portion of the Western States, has proved this year very much below an average. Every farmer should therefore be careful of his fodder, and economise its use. Much cattle food is annually wasted either for want of knowing how to mix and use it, or, as is too commonly the case, from sheer inattention and carelessness. How frequently is straw seen rotting in unsightly heaps, instead of being daily employed in comfortably bedding cattle, and either chopped or boiled with other substances for food. Our farmers this winter, must pay strict attention to the economical mixing and preparing their turnips, mangels, carrots, flax, &c., as substitutes in a great measure for hay, or their flocks and herds will cut a sorry figure indeed before the advent of spring.

It is fortunate that the straw of most of the cereals has been abundant, and in consequence of the favorable weather in harvest, it was secured generally in good condition. It will hereafter be wanted not only for bedding, but in a more than usual degree for provender. Farm horses may be fed with straw cut fine and immersed in boiling linseed meal, and water till all is absorbed, when it should be well mixed up. The straw thus becomes a good medium for conveying the linseed meal, the most fattening of all substances, into the stomach of the animal, and the effect produced is of the greatest advantage. Straw may also be advantageously mixed with other ingredients, such as bran, turnips, carrots, &c, and either boiled or steamed. The compound will prove particularly adapted as food for cattle. The boiling of these productions of the farm with linseed meal, so as to make a kind of pudding or thick jelly, has for many years been advantageously used in Britain in the fattening of animals. It is found by experience that cattle relish and do better upon a cooked mixture of food, than the same quantities of the various materials given singly.

But in order thus to prepare and economise straw as food for stock, the farmer must be provided with an efficient chaff cutter; an implement of essential importance in the present day and under existing circumstances. These machines may now be readily obtained of most of our implement makers in all the older settled districts of the Province; and they are usually exhibited at most of the

agricultural shows, of different forms, prices, &c. By means of this implement and the exercise of care and judgment in the selection and economy of material, cattle feed may be improved and increased to an extraordinary degree. It thus becomes more nutritious and fattening, and answers many other purposes connected with the management of live stock, and the judicious management of a farm.

Another most important means of economising fodder; one which every farmer can more or less adopt, consists in keeping animals clean, dry, and warm during the trying season of winter. A sufficient amount of good food and water, regularly given, although of indispensable importance, dees not embrace the whole of the proper winter-management of stock. In this climate shelter and warmth are no less indispensable, if sound thrifty animals are desired.—Hence the necessity of suitable buildings to meet these conditions. It is a clearly ascertained physiological fact, which modern chemistry has established, that a large portion of the food of animals exposed to cold and draughts, is consumed in generating and sustaining the heat of their bodies, instead of being converted into fat and muscle, as would be the case in a warmer and less exposed situation. A warm stable or byre is therefore a great economiser of fodder. Animals thus cared for will thrive better on less food than will others under less favorable circumstances with a more ample supply. This fact demands the best attention of the farmer at all times, especially when, as at present, the hay crop is so far below the average.

It is important, however, to observe, particularly in reference to sheep, that buildings intended for wintering stock should not be made too close and warm; a mistake, it is true, we are not in danger of committing in this country. All our domesticated animals require a constant amount of pure air, and therefore proper attention should be paid in the construction of farm buildings to the vital question of ventilation. To combine the various conditions necessary in the healthy management of stock, requires constant care and a sound judgment. In this country sheep must be put into yards having sheds, during the cold and storms of winter. But great care is needed in seeing that they are not kept too close; they require exercise and change, with plenty of fresh air, otherwise they will decline in condition, and become the victims of some contagious disease. Of all the physical conditions in which this animal can be placed, those most unfavorable to its health and growth, are dampness and exposure to cold stormy wind. Proper attention to matters of this kind, which come more or less within the ability of every farmer to carry out, will, in seasons like the present, make a scanty supply of fodder do more service in promoting the growth and sustaining the health of the domesticated animals, than a more abundant supply without such attention.

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## ON THE FIRST PRINCIPLES OF AGRICULTURE.

As every trade and profession must now-a-days have its axioms, postulata, or first principles, in order to give it a scientific dress among other crafts, it is highly reasonable that the art of Agriculture, which is now almost completely reduced to a science, should also be permitted to assume its first principles. Without the knowledge of first principles, nothing can be expected from any of the practitioners of Agriculture worthy of attention—their practice being merely a copy from that already established, if not some gross deviation, perhaps, from the beaten track, by means of some erroneous idea of their own conceiving. Men acquainted with first principles will never deviate from them, while they find

them correct; perhaps they may try some experiment consistent with them, and succeed. This, then, is the foundation from which we are to expect a rational system of Agriculture, adapted to all the varieties of soil, climate, and seasons, with which it must ever be connected.

It is true that by means of great attention to, and a careful and judicious imitation of good Farmers, a man of mean talents is sometimes known to make a tolerable figure in this line. He may raise good crops; and good crops are no bad criterion of good farming. Indeed, a man, otherwise a blockhead (at least one who has no notion of first principles,) often excels those who adhere to them with scrupulous exactness; but this must be only where the knowing man wants the talent of strict application. This talent is an essential requisite for a Farmer: indeed, it is indispensable in every occupation where success is desired.

The general principles upon which the success of Agriculture depends are—

1. Without draining wet land, no improvement.

2. Unless land thus drained is properly cleaned, the object of draining is frustrated, and that in proportion as this operation is executed.

3. Manures will always fail in producing the desired effect, in proportion as draining and cleaning are neglected.

3. Early sowing always produces shorter and stiffer straw than late sowing, and that in exact proportion to the times, when not affected by extraneous circumstances.

5. The various species of seed-corn are adapted to various soils, situations, seasons, and other circumstances.

6. Picking and propagating the best heads of the most approved kinds of grain and seeds is the surest method of preserving them undegenerate.

*Draining.*—This article has been amply discussed by able hands, and Elkington's and Smith of Deanston's systems of draining are universally known. Almost every field has its own peculiar circumstances; but as it is not our design in this place to enter into the minutiæ of draining, but to introduce it as a first principle in farming, we shall say no more about it.

*Without draining, no improvement.*—Without it no other operation can be effectual to the end proposed. When land is gorged with water, it cannot be cleaned. No labor is sufficient to do it, except in a very uncommon drought—in some soils, not even then; and when land is not clean, it is impossible to suppose that dung, lime, or any other kind of manure, can have its full effect. Dung will promote the natural grasses more than any kind of grain which may be sown; and these, although the land is sown with artificial grass seed, will still thrive, and render the ground completely fit for a fallow crop, or, if on stiff clays, a summer fallow immediately after dirty lea oats.

*Cleaning.*—This department requires the Farmer's constant attention, and by this alone can be rendered effectual. Early ploughing is of much importance and it is impossible to be too early at summer fallows, or in preparing the land for turnips or potatoes, when spring sowing is over. As we at present speak chiefly of land in the second stage of improvement, it must not be considered so clean as in future it may be expected. We shall suppose the land of a free nature, but extremely dirty by means of its late moist state previous to draining. Every Farmer may plough to his own mind, according to the nature of the soil, and the grass he has to destroy; but, in general, light ploughing is sufficient to kill grass, which generally runs near the surface—and then, before the manure is applied, a strong furrow is of much use, to mix new earth with the dung. At the same time some soils will not admit of a strong furrow, unless in the spring, before the moisture is exhausted. In such situations, harrowing, rolling, and gathering grass roots frequently after every ploughing, is essentially necessary; but it is not our design to teach either ploughing or harrowing.

*Manures.*—Neither is it our design to treat of the nature and properties of manures, and how they operate upon land, so as to produce better crops; whether by communicating to the soil the vegetable food which they contain—whether by enabling it to attract nourishment from the atmosphere—or by enlarging the vegetable pasture which it contains—or by dissolving that which the soil already contains, so as to prepare it for entering the roots of plants.—These are philosophical inquiries, not essentially connected with the present business. Upon this subject there are various theories—some of which are extremely rational, and others extremely absurd.

*Early sowing produces less straw than late sowing, and that in exact proportion to the times* (*cæteris paribus*).—The knowledge of this principle, which was not discovered, at least not attended to, till the close of the last century, is of much importance to the Farmer. Before it was known and practised, the hazard of sowing land in a very high state of cultivation was very great. Oats or barley sown in such condition at the usual period of seed-time as formerly—viz., oats late in March, and barley about the term of Whitsunday—would have been often entirely ruined by being too strong. English barley (commonly from Lincolnshire) and Dutch, and many other early kinds of oats, were adopted without changing the time of sowing; and as these have a tendency to produce shorter straw, they were found of much advantage in securing a full crop without lodging. But it is found that any of our oats sown early produce a shorter and stiffer straw, which has the same effect. Early oats, however, are still much in vogue. The Lincoln barley is almost out of repute: it is well known to some Farmers that the common Scotch barley is the best substitute for it—as, when sown early, its straw becomes shorter, much stiffer, and less apt to lodge. Potato oats are a comparatively new species, and are said to be natives of South America. It appears they were first imported into some of our midland counties of Scotland, in a quantity extremely small; and that they obtained that name from the circumstances of their arriving in a package of *potatoes*. This is a valuable kind of oats in point of meal, yielding two or three pecks per boll more than the Angus, which, in every other respect, we reckon our best oats.—They appear to be again losing ground in the estimation of some people: they are more apt than any other kind to keep the soil, like wild oats, and thereby to annoy the succeeding crops. It seems to be apprehended that, were they to be frequently shaken and ploughed in dry, that they would be as great a weed too. They seem to have another disadvantage, which, in the present circumstances of our labor, is not a small one. They ripen along with the wheat; and that article being now more than ever the chief object of the Farmer, is in danger of occasioning very serious consequences as to the timeous cutting of that crop.—Potato oats are also extremely apt to shake, and seldom fail to drop in shearing. All kinds of early oats are fit only for fine land, or land in a high state of cultivation; but upon inferior land they are the best, when a bad season has thrown the seed time too far back for common ones. Blainslie oats are our native early and have a finer meal as well as finer straw; but they seem mostly out of favor at present. These several varieties of oats and barley afford the Farmer great advantages in securing his grass-seeds, as well as his corn crop, in certain seasons and situations.

As to spring wheat, the dwarf kind, which is known to produce short straw, and is also advantageous in the above circumstances; and as it has a natural tendency to produce short straw, and is also advantageous in the above circumstances; and as it has a natural tendency to produce short straw, it ought certainly upon rich soils to be preferred in winter.

*Picking out the best heads of the most approved grain, is the best method of preserving the species from degenerating.*—It must be evident to every one that

grain has a constant tendency to degenerate. But whether its species suffers or not, it must, by a thousand circumstances, be so blended and mixed with other kinds, and even with different grain, that it requires frequently to be renewed by picking and propagating the best heads. This is found by experience to be the surest method of preserving the grain; and so different is the produce of the earliest and most vigorous ears from that of the poor diseased ones, that it has generally obtained some name to distinguish it from that even of its kind. A Farmer in East Lothian some years ago found, in a cold, bleak situation (Coldingham Muir) a very fine looking vigorous head of wheat—which, being ripe at a period earlier than might have been expected from its situation, he brought with him; and having repeatedly sown its produce, at last furnished seed to a considerable part of that county, and even to farms in many a distant county. It is an excellent kind of wheat—being considerably earlier and more prolific than any kind we are yet acquainted with. It is known as *Hunter's Wheat.*

These hints may perhaps be of some use to Farmers who are only about the beginning of their agricultural pursuits. They may cause a little reflection, and occasion rational experiments, which may confirm, in their mind, the utility of such first principles upon which they were made.—*Scottish Farmer.*

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## SHEEP—ON THE BREEDING OF LEICESTER TUPS.

When treating of short-horned cattle, the attention of breeders was directed to the importance of carrying on as a separate trade that of breeding and rearing young bulls. The same arguments there urged apply with equal force when considering the propriety of establishing a farm for the sole object of beeeding Leicester tups. In commencing an undertaking of this kind, the primary object is the proper selection of the breeding stock. The ewes, besides being pure bred, must possess all the requisite points of a first-rate Leicester; while the tups should be most carefully and judiciously selected from the best stocks. Some breeders prefer large sheep and others small, or sheep which stand high or low on their legs; but a middling-sized animal is to be preferred, extremes being avoided. Such a tup should have a fine head, rather wide from eyes to nose, wide and expanded nostrils, full, bold, quick eyes, thin pricked ears, head altogether prominent and well covered; full neck, sloping gently back to the shoulders and firmly set on; the shoulders broad, full and compact; the breast should also be broad, full, and prominent, joining full up to the neck; the forearm full of muscle to the knee, and a fine flat clean bone and leg below the knee; ribs round and well arched to the back, and full of mutton up to the shoulder; the chine, from the shoulders backwards, strong; the back straight and wide; loins wide; hind quarters long, wide, and well formed; tail well set on, nearly in line with the top of the shoulder; belly nearly straight, shewing little offal; ham or leg full and well filled to the hind hough, both inside and out; standing rather wide on the hind legs, so as to correspond with the fore. In fact, the whole carcase should be so compact as to look like a cylinder with four pins stuck into it, particularly from the fore part of the shoulders backwards; and if the head and neck are all right, he will have a bold and graceful appearance. The wool should be a proper length, fine, bright, and soft, rather close set, with a thin pelt. If a tup possesses all the foregoing requisite, he will feel and handle mellow, and the fingers in handling should sink into the back from shoulders to tail, which is a true indication of the purity of the blood.

These are the qualifications and points which a Leicester flock should have to be fit for breeding. Therefore, those beginning the trade must either have or select such as here described, and without defects; as it too frequently happens that wrong points fall out in sheep which cannot be accounted for. To procure a breeding stock of this kind may be expensive; but it is of no use beginning the trade without, as, unless able to compete with the most eminent breeders of the day, top prices cannot be expected, and the trade, unless at these prices, will not be profitable. It is possible, however, for a

first-rate breeding stock to be procured at a reasonable cost by a man who is a good judge; for by taking time and trouble in the selection, and by setting about it quietly, say in July, he would have three months before tupping time to accomplish his object at a reasonable cost. It is actually necessary for tup breeders to select their flocks with the utmost discrimination and judgment, as no trade in the world requires more care and attention; for if the points in the tups are in any way deficient, it will soon tell on the produce, or if the blood is not pure, the alloy will be quickly developed. The great point of having a tup-breeding flock pure, and with high-toned blood, is that, although at shewing time the shearling tups are not equal in point of symmetry and handling, the worst looking sheep, from being equally well bred, will get as good stock as the most symmetrical. The writer once heard an eminent breeder remark, in reference to a short-horned bull, that if he was as crooked as the letter S he would breed from him, knowing his blood to be pure.

On a tup-breeding farm, the whole rent and profit of the farmer should be drawn from his sheep; but without first-rate management, and proper attention on the part of both master and shepherd, it will not answer. The size of the farm—the quality of the land—the number of breeding ewes to be kept—the probable produce and prices which such breeding stock will realise—the rent of the farm, and probable profit to be derived from a given number of ewes—shewing as near as possible the expenditure and income: these are all necessary calculations to make.

A farm of about 200 acres of good substantial turnip and grass land, at say £2 per acre, would be of convenient size for our purpose. It should be a good, deep, dry, sharp, loam, with an open bottom, and, if possible, a southern exposure—the land gently sloping, and a good climate. On such land the farmer would not be dependent on his grain crops. Supposing it to be farmed under the ten-shift course of husbandry, there should be ten fields of 20 acres each. Under this course of management, the greater part of the farm would be in grass, or 140 acres, which would be 20 acres new grass for the tup hoggs, and 120 acres, of from one to six year old grass, for the ewes and gimmers. The fallow break of 20 acres would be, say 18 acres in turnips, 1 in potatoes, and 1 of tares for horses. Calculating the ewe stock at 140, they should produce 180 lambs, allowing 40 to have twins. The stock to be wintered would therefore be 320; and as the turnips on such good land, and under such management, should be a full crop, twelve acres will supply the hoggs, five the ewes, and one for three cows, which should be the whole cattle stock on the farm, with one pair of horses, and an odd one. One ploughman and two lads could do all the work, except what is regularly done by women and daily workers. The expense of working the farm would consequently not be great; and if the land be well laid down with perennial rye-grass, clovers, and other seeds, it will be fully sufficient to keep the stock. Should there be any surplus grass, it can be eaten by bought-in stock when required.

Allowing twenty for deaths and other casualties, eighty shearling tups and eighty cast ewes and gimmers should be annually sold. The produce of such a flock should stand about thus:—

INCOME.

| | | | | | | |
|---|---|---|---|---|---|---|
| 80 Shearling tups, at £5 each | | | | £400 | 0 | 0 |
| 80 Cast ewes and gimmers, at £2 | | | | 160 | 0 | 0 |
| 300 Fleeces of wool, at 6s | | | | 90 | 0 | 0 |
| | | | | £650 | 0 | 0 |

EXPENDITURE.

| | | | | | | |
|---|---|---|---|---|---|---|
| Rent | | | £400 | 0 | 0 | |
| Purchase of high bred tups yearly | £20 | 0 | 0 | | | |
| Sell one bought the previous year | 8 | 0 | 0 | | | |
| | | | 12 | 0 | 0 | |
| Shepherd's wages, besides his allowance of corn, sheep, and cow | | | 10 | 0 | 0 | |
| Nets and other incidental expenses attending the sheep, say | | | 28 | 0 | 0 | |
| | | | | | 450 | 0 | 0 |
| Profit on sheep, after paying rent, &c. | | | | | £200 | 0 | 0 |

The next consideration is, will the grain raised on the farm, after keeping house, servants, horses, seed, and tup hoggs, pay the other expenses? Allowing twenty acres to be under oats, and twenty under barley, the proceeds will approximate to the following calculation:

| | Qrs. | Qrs. |
|---|---|---|
| 20 acres of oats, at say 7 qrs. per acre | | 140 |
| Say for tup hoggs | 30 | |
| " Seed | 12 | |
| " House and servants | 30 | |
| " Horses, besides light grain | 18 | |
| | — | 90 |
| To sell | | 50 qrs. |
| | Qrs. | Qrs. |
| Barley, 20 acres, say 6 qrs. per acre | | 120 |
| Seed, say | 10 | |
| Servants, &c. | 10 | |
| | — | 20 |
| To sell | | 100 |

| | £ | s. | d. |
|---|---|---|---|
| 50 qrs. oats, at 18s. | 45 | 0 | 0 |
| 100 qrs. barley, at 21s. | 105 | 0 | 0 |
| | £150 | 0 | 0 |

PROBABLE EXPENSES ATTENDING THE TILLAGE LAND.

| | £ | s. | d. |
|---|---|---|---|
| Ploughman, lad, and boy, say | 20 | 0 | 0 |
| Servant girl | 6 | 0 | 0 |
| Cutting crop, and other expenses attending it, say | 20 | 0 | 0 |
| Daily workers, &c. | 10 | 0 | 0 |
| Tear and wear of horses, implements, tradesmen's accounts, &c., say | 20 | 0 | 0 |
| Seeds, say | 10 | 0 | 0 |
| Public burdens, insurance of stock, and other incidental expenses, say | 34 | 0 | 0 |
| Interest of capital | 30 | 0 | 0 |
| | £150 | 0 | 0 |

In addition to the above, the ploughman and shepherd must each have a cow; but there should be sufficient grass in summer, and abundance of straw in winter, to keep them.

The above calculation, if correct, shews that the grain crop will pay the expenses of the tillage land, and also, that the rent and profit are derived solely from the sheep; and in these times £200 on a 200 acre farm should satisfy the farmer and keep him respectably—as he would have from his farm, milk, meal, potatoes, pork, poultry, and he could also feed his own lamb, mutton, and beef, and have, besides, the produce of his garden.

Some farmers may think this a trifling concern, and not enough to occupy their time; but if such a farm produces and brings up annually 80 high bred shearling tups in fit condition for sale, they should be content. Generally speaking, it would be as well if farmers were to give more attention to one particular branch of farming, and manage it with skill and attention, so as to make it profitable, in place of having too much in hand.

As to the general management of such a farm, the new grass is set apart for the tup hoggs. Some breeders may object to this, and say it should be kept for the ewes with twin lambs, and so probably it should; but as the tup hoggs must get extra feeding, the ewes must be provided for in another way. Say that forty ewes having twin lambs were to have two fields of two and three year old grass saved for them all the winter till lambing time, and not eaten too bare; and as no sheep or other stock would be on

these fields all winter, they would be in a very fresh state to receive the ewes with twin lambs in March, and the foggage would keep the lambs warm, and with a few cut Swedes they should do well. The other 100 acres of grass will be sufficient for the ewes with single lambs and ewe hoggs till May, when a heavier stock could be added with the ewes and twin lambs. As there should be plenty of grass by the 1st of May, the field intended for oats the following year, being six year old grass, should be closed, and a stolen crop of hay taken from it, which would make fine sheep hay for the following winter, and the foggage would answer well for the tup lands, which, after getting a run over the clover stubbles, should be put to turnips by the end of September, and a few old sheep put among them to learn them to eat this food. Probably it would be better to keep them for the first month, or during October, in the foggage or other field saved for them; for this is a very important month for the tup hoggs to be well fed, to prepare them for colder weather. As the land is presumed to be dry, they may be netted on the turnips on a well sheltered part of the field; but in case of very wet weather, they should be removed to a grass field as near as possible to the turnips; or a temporary shed should be erected sufficiently large to hold the tup hoggs under cover. As there will be plenty of straw on the farm, from there being so few cattle and horses, they could be bedded daily, so that they would always be dry and comfortable at night, or in wet weather. After 1st of January they should get yellow turnips cut, in boxes, and always to have a sufficient quantity stored in case of frost. After the 1st of February they should get cut Swedes, with 1 lb. of oats to each hogg per day. Throughout the winter they should get a small quantity of hay in racks in the shed. The sheep may be continued on the turnips, hay, and oats till 1st April, when they may be removed to the new grass; but the temporary shed and oats should be continued till 1st May, when they would be ready for shearing. The shed would be of great benefit to them in cold nights after being shorn.

The ewe hoggs should be put to cut turnips in October or November, and will require no extra keep. After casting their teeth, the ewes should get turnips six weeks prior to lambing, and cut Swedes in boxes should be provided during parturition, until the middle of April, or later, if they can be spared. By such management, and by keeping the shearling tups on the new grass during the summer, they will be in excellent condition for shewing in August and September.—*Dickson on the breeding of Live Stock.*

# Agricultural Intelligence.

## NEW YORK STATE FAIR.

*(From our Own Correspondent.)*

ALBANY, N. Y., October 5th, 1859.

This, the nineteenth annual exhibition of the New York State Agricultural Society, is perhaps the most successful which the Society has ever held. Taking place at the capital of the State, the beautiful old city of Albany, where there is a large local population, with plenty of hotel accommodation, abundant traveling facilities in every direction, the city of New York itself at no very great distance, and delightful weather for visiting, everything has been, so far, favorable to a successful meeting, and the result has fully borne out the expectations of those interested.

The show ground lies to the eastward, about two miles from the centre of the city. The entrances to the grounds face the South-east, the business offices being placed along the front. Inside on the right is the Floral Hall, devoted to the display of fruit fruit and flowers and the fine arts. It is about 130 feet in length, running North-east and South-west. To the North-west of this, running parallel to it, and at suitable distances from each other, are the domestic Hall, the President's office, a refreshment shed, and six long covered sheds for sheep and pigs. To the right or North-east of all these is the horse ring, about ⅝ of a mile in circumference, enclosed by a slight board fence, with seats erected for the spectators to witness the action of the horses, trotting round the ring—this being one of the chief attractions. Going back to the entrance, and looking to the back of the ground, running in the same direction as the buildings already described, and parallel with each other, we have on the left two mechanics'

halls, for the display of machinery and manufactures of various kinds, each nearly or about 200 feet in length and 50 in breadth, the dairy hall, a shed for carriages, and the vegetable hall for the exhibition of grain, roots, &c. Further to the left is the poultry shed. North-west of these buildings, and running north-east, are seven long sheds for cattle, parallel with each other, each about 200 feet in length, and capable of accommodating about 40 head of cattle. In addition to all this accommodation for stock, all around three sides of the enclosure there are stalls or boxes for horses and bulls, to the number of some three hundred, or thereabouts. The implements are displayed between the mechanics' halls and the front and south-east side of the grounds. All the buildings described are slight temporary erections, of mere rough boards and scantling, which will, no doubt, answer very well with such fine weather as we have at present, but which, in case of a wet and tempestuous time, would expose the property exhibited to great damage. We have long come to the conclusion in Canada that such buildings are not good enough, or safe enough, for our Provincial Exhibitions, where property is exposed to all the risks of the weather for several days. The general plan of the grounds and buildings here, however, is excellent, affording plenty of room and convenient divisions for the proper arrangement and classification of animals and articles on exhibition. The ground itself is beautifully situated, and is in excellent condition for the purpose. It rises with a gentle ascent from the front or South-east towards the back or North-west; the view in the back ground being terminated by a range of hills, crowned here and there with trees. Looking in the other direction, the view beyond the front of the grounds, across the river, is charming, consisting of undulating fields, hills and slopes, adorned by groves and clumps of wood, now brilliant with all the gorgeous and changing tints of autumn.

The exhibition is extensive and excellent. The following is an abstract of the entries:—Cattle, 362; Horses and Mules, 517; Sheep, Swine and Poultry, 603; Agricultural Implements and Machinery, 495; Grain, Seeds, Vegetables, Sugar and Honey, 360; Domestic Manufactures, 364; Miscellaneous, 601; Fruits and Flowers, 253.—Amounting in all to 3,555.

It is estimated that there were about forty thousand people on the ground to-day. The total receipts were over $5,000. The total receipts up to this (Wednesday) evening, are $7,800. They will probably be greater to-morrow. Amongst the visitors from Canada I noticed the Hon. David Christie, Mr. Denison, Treasurer, and Mr. Thomson, Secretary, of the Agricultural Association of Upper Canada. Mr. Snell of Chinguacousy, and Mr. Jeffry, of Vaughn, are here as exhibitors. Mr. Snell has sold a Leicester ram for $300.

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THURSDAY, October 6, 1859.

I now propose to give a brief general notice of the several departments of this great "Fair," as this and similar exhibitions are somewhat incorrectly termed.

In the class of horses there was a very large display, the entries as I stated yesterday being over 500, and the several committees of judges have been occupied nearly the whole of yesterday and to-day in examining the merits of the animals in the various subdivisions. The ring in which they show their paces, some three-eighths of a mile in circuit, is constantly surrounded by a closely packed hedge of interested spectators, from three to ten in depth. I do not admire the system of showing horses at an agricultural exhibition in trotting sulkies and buggies, but here it is carried so far as to be almost universal, even with stallions, breeding mares and two year olds, and appears to suit the taste of the people better than any other mode. As to the quality of the horses exhibited, one does not see here the large, showy, slow-going draught and coach horses, which predominate at our own exhibitions. The moderate sized, active, compactly built and spirited Morgans and Black Hawks appear to be the favorites, and are here in great force. Some of the stallions of these breeds are of beautiful symmetry and action, and are held at high prices. A greater sprinkling than we have of these breeds of horses would be very useful in Canada. Amongst the "horses of all work," I noticed "Toronto Chief," bred in Canada, and sold by Mr. R. A. Goodenough, of Toronto, last spring for $6,000, and now the property of Mr. L. R. Bowne, of Flushing. The Chief was looking in good condition, and was the centre of an admiring crowd. It would be impossible for me to specify particular animals.—Although there are a great many very fine specimens, there are on the other hand, a great many others very inferior.

In cattle the exhibition is beyond all praise, and quite exceeds in the beauty and value of the animals any exhibition that we have yet had in Canada. In this remark I refer more particularly to Durhams and Devons, for in Ayrshires I am of opinion that our Kingston Exhibition was better than this, and of Galloways they here have none. There are a few fine Herefords, of which breed we have in Canada no good specimens, and a few Alderneys, of which we have none. Samuel Thorne, of Thorndale, Washington Hollow, Dutchess county, N. Y., who is the largest exhibitor of Durhams on the ground, is believed by those well informed upon the subject, to be the possessor of probably the largest and best herd of high bred Durhams in the world. He is a young man with ample means, and he has entered into the business of importing and breeding cattle, sheep and swine on the most extensive scale, boldly picking up the choice lots at the great sales in England, and carrying them off over the bids of some of the wealthiest English breeders, anxious to secure them. Amongst the bulls which he exhibits here are "Grand Turk" (12969) which takes the 1st prize here as an imported bull, over three years old; "Second Duke of Thorndale," 1st prize as a yearling, and stated by many experienced judges here to be the finest animal they have ever seen; and "fourth Duke of Thorndale," under 1 year old. Amongst the cows and heifers are "Lalla Rookh," of European celebrity as a prize taker at English exhibitions, and who has also carried away the palm at every competition on this continent; her cost in England was $3,000; she is a perfect model of a Durham cow, and takes the 1st prize here as an imported cow. "Mistress Gwynn," 1st prize as a cow, 3 years old and upwards, bred in the country; "Fornarina," 2d prize do; "Favorite," 1st prize, 2 years old; "Gertrude," 2d do; "Lady of Oxford" and "Princess of Oxford," 1st and 2d prizes as yearlings. I cannot describe the merits of these animals in the technical language used by breeders, but they are superb, and should be seen to be appreciated. There are many other good animals on the ground in the hands of other breeders, as will be shown by the prize list, but I have not time to particularize. Amongst the exhibitors of foreign cattle, that is, cattle owned out of the State, is Mr. W. R. Duncan, of Kentucky, who has fifteen or twenty Durhams.—They are good serviceable cattle, but somewhat old in style, and not equal in beauty to those from the herds of the chief New York breeders. In the class of Devons, Mr. C. S. Wainwright of the "Meadows," near Rhinebeck, Dutchess county, is, I believe the largest exhibitor, and I believe he is also the possessor of the largest herd of this breed of cattle in the State. Nearly all of the animals he exhibits have all the points of the Devon in perfection. His Bull "Omer Pasha," which obtains the first prize here as an imported bull, was awarded the first prize as a yearling at the show of the Royal Agricultural Society of England, at Carlisle, in 1855. Still, Mr. Wainwright, although he takes the largest number of prizes in Devons, has been obliged to yield the first prize, whether rightly or not I cannot say, to other competitors, in some of the subdivisions of the class. While speaking of Devons, I will observe that scarcely anything can be more beautiful, in the way of an exhibition of cattle, than the large numbers of yokes of Devon oxen on exhibition here. They are all so much alike in their general appearance, color and symmetry, and their long tapering graceful horns, that when a large number of them are displayed together, as they are here, the effect is very striking and agreeable.

In sheep, the exhibition is also large, there being over 600 entries of sheep, swine and poultry. The largest number of sheep on exhibition are Merinos and Saxons, which, although they have an indisputably fine fleece, have no great attraction for the Canadian breeder. There are a good many Southdowns on exhibition. Mr. Thorne has a very fine lot. They are bred from recent importations, either from the flock of Jonas Webb, Babraham, or from sheep that were prize winners at the show of the Royal Agricultural Society of England. The long-wool sheep exhibited by breeders in the State are not, generally speaking, very good. Mr. Snell of Chinguacousy, has the best lot on the ground, and he has sold several of them at very good prices.

The show of pigs is not very large, and nothing very noticeable in it, except some particularly beautiful Essex pigs, shown by Mr. Thorne.

In poultry there is nothing deserving of very particular remark. I think the display is scarcely equal to that at some of our own Provincial Exhibitions.

The attendance to-day has been immense. Every part of the twenty-acre enclosure, and of every building in it, has been crowded to such an excess that it has been difficult to move about. The receipts to-day have been over $7,000, making, I believe, nearly $16,000 to the present time, (Thursday evening.)

FRIDAY, October 7th, 1859.

The show of Agricultural Products here is not extensive; in fact you would scarcely see so meagre a display at one of our county or township shows in Canada. There are only two or three samples of wheat, and these of indifferent quality, two or three of oats, &c. I notice three lots of Swede turnips, of which only one lot is more than of very ordinary quality; and three of Mangel-wurzel, in all of which there was only one really good root. Even in Indian corn, which we should expect to find very good, the display was not equal to that at some of our shows in Canada, the ears being small, and the grains on the same ear of different colors and varieties. In potatoes there was a very fair display. Again, in garden vegetables, there was only a very moderate show, the carrots, parsnips, beets and some other varieties were inferior, and would scarcely be shown at an exhibition in Canada; the onions, celery cauliflower, cabbage, were very fair in quality. Amongst the articles attracting particular notice in the "Vegetable Hall" were some specimens of the Chinese potato, (*Dioscorea batatas*) the roots being 40 inches in length, and weighing 8 to 12 pounds each. The exhibitor, Jacob G. Sickles, of Stuyvesant, Columbus Co., about 18 miles from Albany, states that they have been grown from seed planted this year and under ordinary cultivation. He also states that the quality for the table is quite equal to that of the best varieties of the ordinary potato, and he believes that when the proper mode of cultivating the root is well understood, it can be planted with profit. Mr. S. V. Thornton, of Watervliet, exhibits the Feejee tomato, said to be a new variety of that vegetable, and superior to those previously in cultivation. It is very solid, and has been the favorite variety this year, where it has been introduced. Why the exhibition of the important products of the field and garden should be so poorly represented, I can only account for by supposing either that the country around Albany is not a very good agricultural district, which I believe is really the case, or else that the society does not attach much importance to a show of mere agricultural products as compared with cattle, machinery, &c., and consequently does not offer large enough premiums to induce the farmers to bring them out. At Syracuse last year, I am told, there was a large display in these classes of products.

In Fruit the show was large and good, particularly of pears and apples, of which the specimens were remarkably fine; of plums and peaches there were none, the season being too late for them; grapes were good, but not very remarkable. The fruit table was 120 feet in length, with three wide and well filled tiers on each side. The show of flowers was also large and fine, particularly of dahlias. The Fine Arts, exhibited in the same building as the fruits and flowers, were not very well represented.

In the Dairy Hall the large display of cheese should indicate that more attention is paid to this branch of framing. There were some fifty specimens, weighing 100lbs or over each, and, I should judge, of excellent quality. Butter was not so well represented, there being only a dozen or two small lots.

In Implements, there was a very large and excellent display. There were reapers and mowers, ploughs, straw-cutters, farm boilers, harrows, rollers, churns, cultivators, fanning mills, threshing machines, portable mills, cheese presses, clover mills, portable grist mills, seed drills, corn shellers, hay packers, &c., in great variety and profusion. The implements, I think, covered some three acres of ground. It would be impossible to specify more than a few articles. Amongst those deserving particular mention is Sherwood's grain binder, a little machine attached to any reaping machine for binding the grain in sheaves before it is deposited on the ground. The exhibitor of the binder states that he has bound 150 acres of grain with it this year; and that it is of perfectly practical application. Numerous testimonials from practical farmers certify to the value of the invention; but at all events, whether it is perfectly applicable in all cases or not, it has unquestionably solved the problem of binding grain by machinery, and shown how, with possibly some modifications under certain circumstances, the labor of at least five men per day can be saved. I consider this a most valuable improvement, and one which ought to be brought into general notice. It received a high premium at the United States Exhibition, at Chicago, in September. The material used to bind with is a light wire, which is passed round the sheaf, cut off the proper length and the ends twisted together so as to hold firmly. It binds as fast as the reaper cut, and in a much neater manner, and with less waste than by the ordinary method. The price of the machine is, I believe $30. The manufacturer is Allen Sherwood, Auburn, State of New York. George Merritt, of Tecumseth, Michigan, exhibits a little machine for

husking corn, which does its work neatly and expeditiously, and would effect a great saving of labor where much of that crop is grown. It is worked by hand and only costs three and a half dollars.

In the two "Mechanics' Halls" may be seen every variety of machinery and manufacture from steam engines and printing presses to the smallest articles. The exhibition in this department is much more extensive than we ever have in Canada, and would well repay an attentive examination, but I have no time to report upon particular articles.

In the "Domestic Hall" were exhibited all sorts of small manufactures, including pickles, sauces, groceries, specimens of bookbinding, ladies' work, harness, upholstery, cabinet work, saddlery, trunks, carpeting, turning in wood, &c., &c., in endless variety. I noticed in this department, a less number of the elegant and fancy articles contributed by the ladies, such as crochet work, embroidery, netting, needlework, &c., than we usually see at our own exhibitions.

To summarize the comparison between ourselves and our neighbors, I should say we must improve a good deal before we can equal them in our horses, Durham and Devon cattle, fine wooled sheep, implements, machinery, manufactures generally and dairy products, at least in cheese; while in our Ayrshire cattle, we are at least on a par with them; in long wooled sheep, pigs, grain and roots, the latter especially, we excel them. In implements, some particular sorts of ours are perhaps better than theirs; their ploughs, for instance, would not be fancied by many of our farmers, and certainly do not do nearly so neat looking work as our own, but they excel us greatly in the variety and quantity of the implements displayed.

In one respect our neighbors greatly excel us, and that is in the concourse of people who flock to the grounds. This is partly attributable to their greater population, and partly to their greater propensity for sight-seeing. On the greatest day, Thursday, with the grounds and buildings completely thronged in every part, by thousands upon thousands of restless spectators, machinery and implements of every sort in perpetual motion, horses showing their paces in the ring, the steam plough, or rather the motive engine without the plough, perambulating the ground in all directions, a dozen church bells on exhibition of from 3,000 lbs. weight and downwards, continually sending forth their sweet sounds, there was presented to the eye and ear, one of the most indescribable scenes of din, bustle, hubbub and confusion which can well be imagined.

To-day, Friday, I leave early, but I do not doubt that the attendance will be again large, and the receipts are certain to exceed $20,000, which is several thousand more than on any former occasion.

A ploughing match takes place to-day in a field adjoining the grounds, but being obliged, as I have above stated, to leave early, I could not spare the time to examine the work. I could easily see however, at a glance, that it was not of that clean, smooth character, which we see done in Canada, the style of plough used here not admitting of it, although perhaps it may be argued that the work they do is really as useful for practical purposes.

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## STATE FAIRS.

We select the following brief notice of the exhibitions held this autumn by the Agricultural Societies of the various adjoining States from the condensed report given by the *Genesee Farmer*:—

### UNITED STATES AGRICULTURAL FAIR.

The Fair of the United States Agricultural Society was held at Chicago, Illinois, September 12—17. The weather was unexceptionable, and the many railroads centering in Chicago were tasked to their utmost capacity to carry to and fro the immense concourse of visitors that kept pouring in day and night from all the surrounding region. The receipts amounted to over $33,000. The fair was inaugurated by a speech from President Tighlman, followed by speeches from Senators Crittenden and Douglass. After the speeches, a grand procession around the ring, of the horses and cattle, enabled one to see at a glance all the animals in those classes on exhibition.

The entries of articles numbered 2,552, viz: horses, 234; cattle, 210; sheep, 171; swine, 44; poultry, 7; farm and garden products, 229; horticultural and household,

311; mechanical and agricultural implements, $1,015; scientific, 209: miscellaneous 72. The crowd through the grounds was so great, and all the halls so densely packed with people, that it was next to impossible to see anything to advantage.

Horses were a prominent feature. A race, or in agricultural phraseology, a "trial of speed," for $1,000, between the celebrated trotting nags Flora Temple and Princess, being one of the attractions. Several of the most noted horses from Vermont and Kentucky were exhibited.

Cattle.—Among these the Devons predominated, and made a good display, both as to numbers and quality. In Short-horns, some splendid herds were shown, among which those of F. W. Stone, of Guelph C. W., and J. N. Brown, of Sangamon county, Ill., attracted special attention.

Sheep.—The show in this department was remarkably good, mostly fine-wools, in which class the Messrs. McConnells, of Sangamon county, Ill., and Gregory, of Vermont, exhibited some very choice French and Spanish Merinoes. In Cotswolds, the flock of F. W. Stone, C. W., attracted special attention. There were also some fine sheep in this class shown by Brodie and Converse, of Jefferson county, N. Y. Of Leicesters, the finest were shown by Messrs. McGlashen and Miller of C. W. In South-downs, the flocks of Messrs. Toms, of Ohio, and Carpenter and Gage, of Ill., were among the best.

Swine.—The show of these was not large, but there were some fine Suffolks, Essexs, and Berkshires shown.

Fowls.—There was less variety than might have been expected, and this department showed evidence that the "hen fever" had subsided.

Agricultural Implements and Machinery.—The show in this department was very large.

### PENSYLVANIA STATE FAIR.

The seventh exhibition of the Pennsylvania State Agricultural Society, took place at Philadelphia, Sept. 27—30, and proved entirely successful. The weather was fair and the attendance numerous—over $23,000 having been received for admission fees.

An exciting attraction to this Fair was a trial of fire engines, both steam and hand-worked engines competing, 16 fire engines being on the ground.

Horses.—Many of the animals were first class, and among them were some fine imported animals, as well as a good display of Morgans and Black Hawks.

Cattle.—In Short-horns, James Gowen, of Mount Airy, exhibited a splendid herd. D. Kelly took the first premium in this class for his bull "Lord Barrington." Of Devons, the show was good, J. H. Strandberg, of Maryland, taking off the premium with his celebrated herd. Alderneys were also well represented, Dr. Twaddell taking several premiums.

Sheep.—But few premiums were offered in this class, and there was not anything remarkable about those on the ground.

Swine.—The display in this class was one of the finest on the ground, principally of the Suffolk, Berkshire and Chester county breeds. The small breeds are evidently gaining favor.

### FAIR OF THE ST. LOUIS AGRICULTURAL AND MECHANICAL ASSOCIATION.

The Fair Grounds of this Association are probably the handsomest and best fitted up of any in the Union. Near the centre stands an immense amphitheatre, capable of seating 20,000 spectators. In the centre of this is erected a beautiful pagoda, from which a band of music enlivens the scene with its stirring strains. Around the pagoda is the ring for the display of the stock, all the animals in a class being led round the ring together, and the judges examine them and make their awards. The prize animals are then decorated with ribbons, and are led round the ring alone, a herald proclaiming in a loud voice the names of the owners.

The Fair was held Sept. 26—Oct. 1. The Premium List was larger than that of any other association in the Union, and brought exhibitors from a great distance. Last year we visited this Fair, and were much disappointed in the character of the exhibition. This year the show appears to have been vastly superior—one more commensurate with the great liberality of the Premium List.

The exhibition of horses was very large. All the notabilities of the turf were there, as well as the most celebrated roadsters and draft horses. The premium of $1,000 for roadster went to "Stockbridge Chief," owned by Messrs. Cooper and Green, of Jefferson county, Ky. The $1,000 premium for thorough-bred stallions was carried off by "Revenue," owned by A. Buford, of Woodford county, Ky., against 31 competitors among which were "Lexington" and "Dubloon." The sweepstakes of $300 for the best stallion on the grouud, went to "Dubloon," owned by H. E. Moore, of Cooper county, Mo.; and that of $200 for the best mare, went to "Belle Sheridan," owned by R. S. Morrison, of Lexington, Ky.

In the cattle department, the show was remarkably good, J. N. Brown and J. D. Smith, of Ill., and R. A. Alexander, of Ky., being the principal exhibitors. The $1,000 premium for the best aged bull, was awarded to "Second Duke of Airdire," owned by R. A. Alexander, of Ky. The sweepstakes of $300 for the best bull of any kind or age on the grouud went to "King Alfred," owned by J. N. Brown, of Ill.; the $200 sweepstakes for the best cow, to "Tulip," owned by the same breeder.

In every other department, the show was very superior.

The attendance was very large, considering that the weather was rather wet and stormy during the first week, which necessitated a continuance of the Fair into the second week, and it closed on Oct. 4, with the usual lady equestrianship.

### ILLINOIS STATE FAIR.

This Pair, held at Freeport, Ill., September 5—9, appears to have been very successful. The grounds were finely located, the arrangements very good, and the weather throughout proved propitious. The fact of the United States National Fair being held so shortly afterward at Chicago, prevented many of the best breeders of stock in that State from sending their choicest animals to the State Fair. This was most particularly the case with horses, the animals in this class not coming up in numbers or quality to some former years.

The show of cattle was very fair, but not up to that of last year. Among the Short-horns were the fine herds of J. N. Brown, of Sangamon county, and N. M. Chamberlin, of Ohio, the latter of whom carried off the premium for the best bull in this class, and the former the first premium for the best herd on the ground. The Devons were well represented; the herds of Johathan Perrin, of Hope county, and C. D. Bent, of Iowa, ranking first in this class. Herefords and Alderneys were not numerous, but the herds of Thomas Aston, of Ohio, and a few choice animals from Maryland were of a quality hard to beat.

Of Sheep, the show was first rate; some very superior Long-wools appearing among them from the flock of J. McGlashen, of Pelham, C. W., who took several prizes. Of South-downs, the flock of Samuel Toms, of Ohio, containing many choice imported animals, carried off the ribbons. Fine-wools appeared in large numbers, and of fair quality. C. Rosensteil, of Freeport, E. F. McConnell, of Chatham, and Hammond and Barnes, of Wheaton, taking the first premiums in this class.

Swine.—In this class the Essexs and Suffolks were well represented. The Hon. John Wentworth, of Chicago, and S. K. Ruble, of Wisconsin, and W. Peveril, of Rockford, taking the best prizes.

Farm Products and Fruits, &c.—In this department the show was better than in any former year. The samples of grain shown were first rate, and the fruit, of which many of the best specimens were from "Egypt," were such as only the rich warm soil of Southern Illinois can produce.

Of implements generally, the number on exhibition was very large, among which corn shellers and sugar-cane mills showed the most novelties. The great attraction of the Fair was Fawkes' steam plow, and to it the State Society owe much of the success of the exhibition this year, in a pecuniary point of view. A trial was had of this plow, which performed all that was anticipated from it, and it was awarded the premium of $3,000, and covered with garlands and ribbons by the ladies, and its merits duly set forth by the speech-makers of the occasion.

### OHIO STATE FAIR

Was held at Zanesville, Sept. 20—23. Great preparations were made for this Fair, and the material for a good show in several of the departments came to the ground, the entries numbering up to 2,506. But the weather proved inauspicious, and considerably lessened the attendance of visitors and live stock. The receipts only reached $9,500.

HORSES.—There were fewer than usual, but among those present were some very fine imported animals from the stables of Messrs. Alexander and Woodroffe, of Ky.

CATTLE.—The show of these was small, and many of the old familiar faces were absent. The prize herd of Short-horns was that belonging to the estate of the late Mr. Lang, Highland co. Of Herefords, Devons and Ayrshires, the *Ohio Cultivator* says: "There were just enough to swear by," Thomas Aston and G. W. Penny showing some good animals.

SHEEP came out in respectable numbers, and of good quality, as did also swine.

MACHINERY AND IMPLEMENTS.—This department was the best of the show. Among the machinery were some portable steam engines for farm purposes; sugar evaporators; and a new monster traction engine, propelled by horse power, to which a mole plow was attached, that opens the channel, and cements it as it travels. Of implements, the plows were the great feature. There were also some specimens of drain-tile, from the Woodstock works.

### MICHIGAN STATE FAIR.

This fair was held at Detroit, October 4—7. The weather proved fair, and there was a good attendance of visitors. The entries numbered 2,314.

HORSES.—The show of these was large and good. Among them were some from Vermont and Canada. M. E. Crofoot, of Pontiac, showed a fine team of matched horses (greys) which took the first premium.

CATTLE.—Short-horns mustered strong; the first premium for aged bulls going to S. W. Dexter, of Dexter, Michigan. A. & J. Barber, of Avon, N. Y., showed a fine herd in this class, and took several prizes. A good many Devons were shown, some of which ranked high in quality. C. Rich, of Lapeer, took the first premium for aged bulls, and Ballard & Sons, of Niles, and J. Allen & Sons, of Coldwater, took several prizes for their stock in this class. Herefords and Ayrshires did not show largely, but those on the ground were good.

SHEEP.—A good show, principally fine-wools. H. Hitchcock, of Lyons, and B. Pecham, of Albion, showed some fine Spanish Merinos, and took the first premium in this class. N. S. Schuyler and J. L. Thompson, of Coldwater, took the first premium in French Merinos. Saxons and Silesians also mustered up pretty strong. In South-downs, S. Toms, of Ohio, proved invincible, carrying off the first premiums. Of Leicesters and Cotswolds, several fine animals were shown, mostly from Canada.

SWINE.—Not very numerous; nearly all the prizes went to the Suffolk and Essex breeds.

The other departments were all well represented.

### NEW JERSEY STATE FAIR.

This Fair, held at Elizabeth, September 13—17, was the most successful ever held in the State. The entries numbered 1,059, and the receipts at the gate amounted to $7,000. The show of horses was very numerous and superior, and embraced some of the champions of the American turf.

CATTLE.—In Durhams, G. Hartshorne, of Rathway, and B. & C. S. Haines, of Elizabet, took most of the premiums. In the other classes, Devons and Ayrshires were most numerous, and many fine animals were shown.

SHEEP.—In this class the entries were all of long and middle-wools, no fine-wools being shown. The premium for the best ram went to B. & C. S. Haines, for their imported Hampshire Down bucks—a variety of South Downs meriting more attention than they have yet received in this country.

All the other classes were well filled. One novelty was a goose 85 years old.

The weather was fine, and all the arrangements gave perfect satisfaction.

### VERMONT STATE FAIR.

This Fair, held at Burlington Sept. 13—16, was very successful. Horses were the predominant feature. There were 544 entries of horses, besides mares with foals!—"Young Columbus" took the first prize on the course. The Morgan stock was most numerous, though "Ethan Allen" and "Black Hawk" had some worthy representatives. A four-year-old colt, owned by Mr. Baldwin of Ticonderoga, N. Y., is said to have exhibited a promise of being a worthy successor of "Black Hawk."

## EVENING DISCUSSIONS AT NEW YORK STATE FAIR.

At the late New York State Fair at Albany, meetings were held each evening for discussion in the Agricultural Hall, a large and handsome building erected by the Society in a central part of the city, for the purposes of an office, library, museum, &c. One of the conductors of this journal had the pleasure of being present on two of the evenings. The subjects discussed were, The Management of Manures, The Treatment of Grass Lands, and The Soiling System. We take the remarks of a few of the speeches on Thursday evening, October 6, from the Report of "The Country Gentleman."

L. F. Allen of Black Rock. Every farmer should be allowed to tell his own story in his own way, for there are various causes which influence his circumstances, both natural and artificial, such as soil and climate, near or remote from market, &c., which he himself best knows, and which others are entirely ignorant of; and no man's system of farming should be condemned by another, simply because it does not apply to *his* individual circumstances. Hence we see that men of good judgment and careful experience differ widely, each in his own way. If a farmer hears another farmer say what *he* knows to be best, how can the former practise what the latter teaches? Soils need different treatment, and that treatment which one person gives his land and which succeeds, may not succeed with another. Doubtless some soils when once laid down, are better to be kept so; others need to be often plowed up. In good dairy regions of England, pastures have laid since the conquest with a surface manuring, and now prodnce better than ever. The soils of Westchester have never been moved, and are now better than ever before. In the southern counties, three-fourths of the land has never been plowed either in mowing or pasture, and their meadows now yield 3 tons per acre. These meadows also show at the present day, the cradle knolls of centuries ago, and the owners of those farms will not let the sod be broken upon them. They know very well that there is a rich vegetable deposit of leaves that has constituted a humus in the soil, which if once broken is lost forever.

Hon. Josiah Quincy, Jr., of Massachusetts, took the stand. The substance of his remarks was as follows:—In connection with the subject of soiling, one of the first questions asked is, how much land does it require to keep a cow? I have learned that one square rod of grass, barley, oats, or corn, is sufficient for the food of a cow a single day. The best fodder for the purpose of soiling is grass, oats, Indian corn and barley. My system is this; I use grass until July; about the 5th of April, oats are planted at the rate of four bushels per acre; they are also planted on the 20th of April, and the 1st of May. This lasts through July and August, and corn so planted will remain succulent for about ten days. The southern variety of corn is then sown in drills, in the quantity of three bushels the acre, which furnishes food for September and October. Barley is then planted ten days apart, which lasts till vegetables come on. In winter the feed consisted of hay, cotton seed meal, and roots—[Mr. Quincy here spoke of the advantages arising from this system, which he alluded to in his remarks the previous evening, and continued]—The great increare in the soiling system is as seven to one; that where only one cow was kept without this practice, seven can be kept by it, and I have demonstrated that one acre of land in a good state of cultivation, will afford sufficient food to keep three cows through the season. [Here the gentleman alluded to the manner of using liquid manure, as practised by Mr. Mechi in England, which consists of a serious of pipes in the ground, through which liquid manure is forced by means of steam power—which has before been described in the Co. Gent—and he also spoke of the system of manuring in Scotland, by which their lands have been made to produce from five to seven crops in one year, and further remarked.] It has been well said that there are three important elements or principles which constitute a good farm; the first of these is manure, the second is *manure*, and the third is manure! I place but little confidence in patent fertilizers, so great is the adulteration in most kinds, but strongly urge each farmer to raise his own manure upon his own farm. Muck I use as an absorbent, by placing it in a gutter in the stable for my cows, which gutter is eighteen inches wide and four deep. There is a cellar under the stable into which the manure passes. I am sorry to say that I keep only about twenty cows;—in the morning and evening these are let out in the yard, where they remain a few hours, as it is

not necessary that they have a great amount of exercise. My cows are perfectly healthy, having never lost an animal, and this system appears to agree perfectly with their health and comfort in every respect. They do not suffer from drouth or loss of pasture. The mowing is usually done in the morning, and the cows are fed five times during the day. I think one man would be employed half of his time in feeding twenty cows, if the fodder was not too remote from the stable. One other advantage of the soiling system was, that it added in importance and numbers to the list of farmers in our country.

Mr. GEDNEY, of Westchester.—I draw out my farm manure in Spring, and then turn it under for corn, after which wheat is sown with top-dressing of bones. I keep 20 cows, from which I save in one year about 100 hogsheads of liquid manure, by means of a series of spouts and a large tank constructed for the purpose. The liquid is pumped from the tank, and sprinkled upon the land as a top dressing. In six months it will increase the product of grass per acre three-fourths. Keep my cows up in stables all summer—i. e., night.

Mr. STEWART, of Hamburg, Erie Co.—For three years I have practised soiling, and find it a benefit both to men and animals. In the course of my experiments I have found that one acre cut is equal to four acres in pasturage. The manure that is saved by this system more than pays all the expenses attendant upon it; and the saving in fences would in most localities also pay all expenses. The increase in the value of animals is also about five-fold. I practiced feeding cut straw, steamed and mixed with one pint of corn-meal to the bushel. This I find makes better feed than an equal amount of timothy. I think one man can care for fifty cows, and milk ten of them in addition, if the feed is close by. By this method I make $500 per year more than by the old system of pasturage. For feed I used roots to the 20th of May, and then cut clover until after haying. Have raised corn, and consider it the best foodder for the purpose, as it comes nearest to grass. I have also found that butter made from it will keep longer than that made from any other feed. For winter I mix carrots and oil-meal with cut straw, and give three bushels per day to each cow. Food is steamed before it is given out.

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## SHORT NOTICES OF COUNTY SHOWS.

The season of Autumn Agricultural Shows and Fairs is now nearly or quite over for the present year. From early in September to the present time, probably from a dozen to twenty-five or thirty county or township exhibitions have taken place every week in one part or other of the Province. Some persons indeed are of opinion that we have a great many too many of them, and that there would be both economy and advantage in many instances in combining several of the small county or township shows into one of larger pretensions. Let this be as it may, it is beyond question that much progress and benefit has resulted from these annual gatherings and exhibitions of skill; and if any decided improvement can be effected in the mode of conducting them, it may reasonably be anticipated that correspondingly increased advantages would be gained. The farmer whose whole summer has been one continued season of active and laborious industry, not unmingled with occasional anxiety and suspense, having at length secured his crops in his barns or stacks, threshed out and disposed of so much of them as his immediate occasions require, and got his fall wheat satisfactorily put in the ground, fenced, drained, &c., looks forward to the visits of himself and family to the township, county or provincial show as a season of leisure and relaxation from their long sustained labor. The mind there receives some pleasurable sensations in the change of scene and of incidents from those of every day occurrence. Friends are met with, perhaps, who had not been seen since on a similar occasion the preceding year. Some superior animal, agricultural product, improved implement, or specimen of mechanical skill meets the eye of the farmer or the mechanic, which convinces the former that his live stock, his products, or his farm implements are not all they should be, and the latter that he must make another trial before he can pronounce his own work or manufacture quite perfect. For these reasons and numerous others, the autumn exhibition season is to many persons one of the most interesting and pleasurable which occurs

during the year. In fact, it is to very many, owing to the nature of the farmer's occupation, his peculiar dependence upon the seasons, &c., almost the only term of relaxation and enjoyment which they indulge in, apart from their ordinary occupation. The farmer's life and occupation affords him, in the study of his art, and in the unfolding of the beauties of nature which he sees every day around him, not to mention numerous other advantages of his position, material, if properly improved, for as pure enjoyment and as high mental cultivation as any other profession. But even supposing the home circumstances fully turned to advantuge—which is, we fear, in few cases—the the farmer, as well as other people, requires an occasional change of scene and of occupation. And when he is from home he should not be satisfied with merely looking at something which he is convinced is much better than anything he has himself, and then go back and forget all about it; he should make a note of it and be determined at the very first practicable moment to have something as good or a great deal better.

We should be glad to receive from the officers of agricultural societies, brief notices of anything deserving particular mention at their shows, or on other occasions, for early publication in the journal. Our limits of course do not admit of long reports; and besides, the details of the prize list, &c., must be embodied in the Reports to be adopted next January. But we should like to receive, not only in reference to the shows, but on all other occasions, frequent short communications from our readers, on all subjects of interest which come under their observation. In the absence of anything of the kind in reference to the autumn exhibitions, we condense from such newspaper reports as have come into our hands, the prominent features of a few of the Autumn County Shows. To notice the Township Exhibitions also, although in many cases they are equally interesting and even better attended, would require more space than we have at disposal.

City of Toronto and West Riding of Yobk Agricultural Societies' Union Exhibition, held at the Crystal Palace, Toronto, on the 14th and 15th, September. $1500 offered in premiums, and about $1300 awarded. About 1200 entries. A good exhibition, particularly in the Horticultural and the Arts departments. As an experiment in the union of two electoral division societies, it was a decided success. Over $650 were taken in admission fees at the gates.

North Simcoe.—Held at Barrie on September 23rd. Being the first show of the society in which the industrial arts were represented, it attracted much interest and was a satisfactory meeting.

South Wellington.—Held at Guelph, October 4th. Remarkable for the large display of Durhams, there being 41 entries in this class, Messrs. F. W. Stone, J. Parkinson, A. Hogge, and S. Hodgskin being the chief exhibitors. Messrs. Parkinson and Stone carried off the largest number of prizes for sheep. There were altogether 540 entries, and the show was very well attended.

Dundas County.—Held at Morrisburg, October 5th. Show of horses small; of sheep, cattle, and agricultural products very good. The department of home manufactures and ladies' work proved specially attractive.

Essex County.—Held at Amherstburgh, October 12th and 13th. Exhibition stated to be not so good as on some former occasions, which is attributed partly to the smallness of the amount offered in premiums. Some sheep, however, purchased by the society at the late Michigan State Fair and other quarters were very superior. The grain, roots, apples, &c., were beyond all praise, and asserted by the local paper to be equal to anything at the U. S. National Fair at Chicago, or the Michigan State Fair.

East Durham and Township of Hope.—Held at Port Hope, October, 11th. The exhibition of ladies' work, fine arts, and domestic manufactures was particularly attractive. Messrs. Wade and Foott were the principal exhibitors of Durham cattle; Mr. Choate, of Devons and Grades; Messrs. Dickenson, Foott, Choate and Carveth, of Sheep and Swine. Mr. Wm. McDougall delivered an address. The attendance was large, and altogether the meeting highly satisfactory.

North Wellington.—Held at Elora, October 11th. Attendance not very large. Samples of grain, vegetables, and manufactured articles not very numerous but of superior quality. The display of sheep was excellent. Mr. Anderson, of Elora, exhibited a number of superior implements.

North York.—Held at Newmarket, on 11th and 12th October. Considered the best show ever held at Newmarket. The fine arts, ladies' department and manufactures were a prominent feature. There were over 700 entries of articles. A good show of implements. A large number of horses, cattle and sheep, and of fine quality.

East Northumberland.—Held at Warkworth, October 12th. We have no particulars. There seems to have been a pretty spirited competition for the prizes offered.

Haldimand County.—Held at Cayuga, October 18th. A successful meeting. The show of horses, cattle and sheep good. Of grain, roots, &c., the entries were numerous and the samples particularly good. Messrs. Dochstader, Gowland, Miller and Young were the chief exhibitors of horses; Messrs. Ferguson, Wickett, Dochstader and Griffith, of cattle; Messrs. Blanchard, Petch, Bain and Maitland, of sheep.

East York.—Held at Malvern, Scarboro, October, 17th. We understand that it was a very successful meeting, but have not the particulars.

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Guelph Monthly Fair.—The October Fair held yesterday, was the largest and most successful since they were first inaugurated. The grounds were literally crowded from the Grand Trunk Station to far below the Market, and it is estimated that upwards of 1500 head of Cattle were on the ground. The prices demanded were extremely high, ranging from $100 to $125 per yoke for Oxen, and one yoke we believe was sold for $130. The usual price offered was $75, per yoke, and hundreds exchanged owners at that rate. The principal part are bought for the Albany and New York Markets. One dealer, Mr. Reade of Toronto, shipping from the last fair no less than 300. On Tuesday, at Elora, he bought 45 head, and in Guelph 30. Taking the fair altogether it was as sucessful as could be desired, and farmers have had hitherto no reason to complain of the want of accommodations upon coming to these fairs.—*Guelph Advertiser, Oct.* 6.

Sale of thorough-bred Durham Stock.—The Hon. Adam Fergusson, according to announcement, disposed of a part of his herd of Durhams yesterday. The cattle were in a somewhat low condition, but this served better to display their points, and some fancy breeders pronounced them equal to anything that they had ever seen in our market. There were 6 heifers and 4 bulls. The bidding continued brisk throughout the sale, and they were all readily disposed of, and delivered on the ground. The prices realized, which appeared to be satisfactory, were as follows:—

HEIFERS.

*Britannia*, red and white, calved 22d Feb., 1856, dam Primrose, sire Victor; served by Ethelbert, $57, bought by William Armstrong.

*Daisy*, roan, calved April 11th, 1857, dam Duchess, Sire Hero; $62½, bought by Patrick Hughes.

*Mayflower*, red, calved May 20, 1857, dam Cherry, sire Hero, $88; bought by John Armstrong.

*Eltie*, red and white, calved Dec. 27, 1857, dam Britannia, sire Field Marshal, $53; bought by John Mitchell.

*Daffodil*, roan, calved March 15, 1858, dam Primrose, sire Hero, $61; bought by Thomas Whitelaw.

*Hoyden*, red, calved March 28, 1858, dam Wildame, sire, Mr. Davis Wentworth, bought by C. P. Hutchinson, $50.

BULLS.

*Harold*, roan, calved Sept. 16th, 1858, dam Alma, sire Ethelbert, $25; bought by Robert Amos.

*Canada Lad*, red and white, calved March 24, 1859, dam Primrose, sire Elthelbert, bought by James Cowan; $35.

*Lord Clyde*, red, calved April 17, 1859, dam Duchess, sire Ethelbert, $48; bought by C. P. Hutchinson.

*Marquis*, red, calved April 16, 1859, dam Countess, sire Ethelbert, $62; bought by Arthur Hogge.

A grade Heifer was also sold to Thomas Williams for $20.

MILK WHICH DOES NOT YIELD BUTTER, AND THE MEANS TO REMEDY IT.—The author calls the attention of those who are chiefly interested in such cases, in which there is no disease of the mammary gland nor loss of milk, but a want of oleaginous matters in the fluid. In the causes of this deficiency of butter making quality, he concludes that there are *two* principal ones, viz: idiosyncrasy and alimentation; but there is another which cannot be so easily defined, and which occurs in animals that are well kept, and whose milk has been previously rich in butter. It is to these that the remedy is principally directed. The remedy consists in giving the animal two ounces of the sulphuret of antimony, with three ounces of coriander seeds, powdered and well mixed. This is to be given as a soft bolus, and followed by a draught composed of half a pint of water, and a handful of common salt, for three successive mornings, on an empty stomach.

The remedy, according to the author, rarely fails, and the milk produced some days after its exhibition, is found to be richer in cream. The first churning yields a larger quantity of butter, but the second and the third are still more satisfactory in their results.

A letter from a farmer states that he had fourteen cows in full milk, from which he obtained very little butter, and that of a bad quality. Guided by the statements of M. Deneubourg, which had appeared in the *Annales Veterinaries*, he had separately tested the milk of his cows, and found that the bad quality of it was owing to one cow only, and that the milk of the others yielded good and abundant butter. It was, therefore, clearly established that the loss he had so long sustained was to be attributed to this cow only. He at once administered the remedy recommended by M. Deneubourg, which effected a cure.—*Veterinarian.*

FIXED FACTS IN AGRICULTURE.—Somebody has made up the following list of "fixed facts" in agriculture. Though calculated for the Eastern States, many of the facts are of general application:

1. All lands on which clover or the other grasses are sown, must either have lime in them naturally, or that mineral must be artificially supplied. It matters but little whether it be supplied in the form of stone-lime, oyster-lime, or marl.

2. All permanent improvement of lands must look to lime as its basis.

3. Lands which have long been in culture, will be benefitted by application of phosphate of lime, and it is unimportaut whether the deficiency be supplied in the form of bone dust, guano, native phosphate of lime, composts of flesh, ashes, or that of oyster-shell lime—or marl—if the land needs it.

4. No lands can be preserved in a high state of fertility, unless clover and the grasses are cultivated in the course of rotation.

5. Mould is indispensable in every soil, and a healthy supply can alone be preserved through the cultivation of clover and the grasses, the turning in of green crops, or by the application of composts, rich in the elements of the best mould.

6. All highly concentrated animal manures are increased in value, and their benefits produced by admixture with plaster, salt or pulverized charcoal.

7. Deep ploughing improves the productive powers of every variety of soil that is not wet.

8. Sub-soiling sound land, that is, land that is not wet, is eminently conducive to increased production.

9. All wet lands should be drained.

10. All grain crops should be harvested before the grain is thoroughly ripe.

11. Clover, as well as the grasses intended for hay, should be mowed when in full bloom.

12. Sandy lands can be most effectually improved by clay. When such lands require liming or marling, the lime or marl is most beneficially appled when made into a compost with clay. In slacking lime, salt brine is better than water.

13. The chopping or grinding of grain to be fed to stock, operates as a saving of at least twenty-five per cent.

14. Draining of wet lands and marshes adds to their value, by making them prodnce more, and by improving the health of the neighborhoods.

15. To manure or lime wet lands, is to throw manure, lime and labor away.

16. Shallow ploughing operates to impoverish the soil, while it decreases production.

17. By stabling and shedding stock during the winter, a saving of one-fourth of the food may be effected; that is, one-fourth less food will answer, than when the stock is exposed to the inclemencies of the weather.

18. A bushel of plaster per acre, sown broadcast over clover, will add one hundred per cent to its produce.

19. Periodical application of ashes tends to keep up the integrants of the soil by supplying most, if not all, of the organic substance.

20. Thorough preparation of land is absolutely necessary to the successful and luxuriant growth of crops.

21. Abundant crops cannot be grown for a succession of years, unless care is taken to provide an equivalent for the substance carried off the land in the land products grown thereon.

22. To preserve meadows in their productiveness, it is necessary to harrow them every second autumn, apply top-dressing, and roll them.

23. All stiff clays are benefitted by fall and winter ploughings, but should never be ploughed when wet. If at such ploughings the furrow be materially deepened, lime, marl or ashes should be applied.

24. Young stock should be moderately fed with grain and watered, and receive generous supplies of long provender, it being essential to keep them in a fair condition, in order that the formation of muscle, bones, &c., may be encouraged and continuously carried on.

25. Milch cows in winter, should be kept in dry, moderately warm, but well ventilated quarters, fed and watered three times a day, salted two or three times a week, have clean beds, be curried daily, and, in addition to their long provender, should receive succulent food morning and night.

26. Full complement of tools and implements of husbandry are intimately connected with the success of the husbandman.

27. Capital is not only necessary to agricultural success, but can be properly used in farming as in any other occupation.

Dairies and Bone Manure.—An English paper, in commenting upon this subject, remarks that the Cheshire dairy farmer, by the free use of bone manure laid on his grass lands, makes his farm, which, at one time, before the application of bone manure, fed only twenty head of cows, now feed forty! In Cheshire, two-thirds or more, generally three-fourths of a dairy farm are kept in perfect pasture, the remainder in tillage. Its dairy farmers are commonly bound to lay the whole of their manure, not on the arable but on the grass land, purchasing what may be necessary for the arable. The chief improvement, besides drainage, consists in the application of bone manure. In the milk of each cow, in its urine, in its manure, in the bones of each calf reared and sold off, a farm parts with as much earthy phosphates of lime as is contained in half a hundred weight of bone dust. Hence the advantage found in returning this mineral manure by boning grass lands. The quantity of bones now given in Cheshire to an imperial acre of grass land is about twelve or fifteen cwt. This dressing on pasture lands will last seven or eight years; and on mowed land about half that period. But the grass land once boned and kept under pasture is never so exhausted as to be as poor as it was before the application.—*Rural New-Yorker.*

How to test the Quality of Wool.—A Texas paper says: Take a lock of wool from the sheep's back, and place it upon an inch rule. If you can count from thirty to thirty-three of the spirals or folds in the space of an inch, it equals in quality the finest electoral of Saxony wool grown. Of course when the number of spirals to the inch diminishes, the quality of the wool becomes relatively inferior. Many tests have been tried, but this is considered the simplest and best. Cotswold wool and some other inferior wools do not measure nine sprals to the inch. With this test, every farmer has in possession a knowledge which will enable him to form a correct judgment of the quality of all kinds of wool. There are some coarse wools which experienced wool growers do not rank as wool, but as hair, on account of the hardness and straightness of the fibre.

For Hide Bound Horses.—*Symptoms*—Skin firmly attached to the body; animal in poor condition; coat staring.

*Treatment*—Give good nourishing food, with warm mashes, and mix one of the following powders every day in the feed. Sulphate of copper 1 oz., pulverized gentian root 2 oz.; mix and divide into twelve powders.

An excellent ointment for saddle galls, &c. Camphor 2 drachms, oil of rosemary 1 drachm, lard 3 ounces. Apply twice a day.

Steam Culture.—The process of cultivation by steam is gradually approximating to that point which will render it an established economic system, placing agriculture on a par with every other branch of industry. Improvements in the present, and suggestions of new, methods of adapting this power to the existing conditions of the land, concur with the admissions of the machinists themselves, in proving that the system is still in its infancy, and that something is wanted to bring it within the ordinary range of the labour and implements of the farm. Those intelligent and skilful men, the machinists, who expend thousands upon experiments, with a fearlessness which proves both confidence in their own judgment and the all-importance of the subject, feel that something is still wanting to effect the desired object, and render the steam-plough as common and effective as the thrashing-machine, and the winnower or chaff-cutter. Steam culture is, indeed, a subject of the first importance to the British farmer, involving the future of agriculture to an extent he himself is scarcely aware of. We anticipate the time when England will, by the general application of steam power to *all* the labour of the farm, be able to grow corn at a much cheaper rate than she can now import it from any country in the world, whilst the produce will be so increased as to render such importations unnecessary; nor will the progress of steam be stayed until these objects are fully accomplished.

We have, during the past week, had an opportunity of witnessing a further step in this progress—"Eddington's Improvement on John Fowler's steam-plough," which we saw at work on the Warren Farm, in the occupation of Mr. Perry, at Writtle, near Chelmsford, where Mr. Eddington's foundry is situated. This machine has ploughed upwards of 150 acres in the immediate neighbourhood of Chelmsford since harvest.

The improvement consists, in the first place, in adapting the ordinary steam engine of the farm to the purposes of the plough, by separating from it the windlass, which is attached to it in Fowler's plan. The windlass is fixed on a strong oaken frame, which also is furnished with two drums for receiving and giving out the coils of rope employed in the working. On the top of this frame stands the engine (8-horse power), which by its weight adds to the stability of the machinery, while the power is more directly applied to it. In the second place, Mr. Eddington employs two engines and two sets of ploughs, one stationed at each end of the field. By this means he not only gets rid of the necessity of employing an anchor, which is a cumbrous machine, but he executes double the work in a given time. The field in which we saw the machine at work was four hundred yards across; and an engine being stationed at each end, the ploughing aparatus met in the middle, and then returned, each to its opposite headland. Thus the same length of wire rope is used for the two as was used upon the original plan by Fowler for one, the additional engine being substituted for the anchor and sheaves, which may be called a non-working implement. The engines are stationed at right angles with the work, and move along the headland as the operation proceeds. With the common labourers of the farm, in addition to the enginemen who are employed by Mr. Eddington, he executes ten acres per day; but he is quite certain that when the former become accustumed to the ploughs and machinery, and have a stimulus of extra pay set before them, they will be able easily to execute from fourteen to sixteen acres per day. In case only one engine is used, the economy of the plan will be reduced to the employment of the common thrashing engine, and the greater compactness of the machinery by having the engine placed on the top of the oak frame instead of being placed separate, as on the original plan. In other respects, the anchor and the same length of rope would be necessary for one engine as in Fowler's plan. There were eight plough-breasts attached to each engine when we inspected it, and the work was exceedingly well executed—without, of course, any furrows. On a large farm, the economy of using two engines is obvious. Few farmers occupying from 500 to 1,000 acres are without two steam engines of 8 horse power, and with these the work of ploughing—of so much importance at certain periods of the year—may be executed with a speed unattainable on any other existing plan.

And now, with regard to the financial economy of the Eddington steam plough. The manual labour consists of two enginemen at 3s. 6d. per day each, two ploughmen at 2s. 6d., four labourers at 2s., two boys at 1s., one horse and man fetching water at 6s., and 18 cwt. of coal, 20s., making in all £2 8s. per day. This brings the working expenses to 5s. per acre; to which must be added 2s. per acre for wear and tear of the machinery and rope, bringing the total expense to 7s. per acre. It was estimated by the farmer that the land on which we saw the machine at work could not be ploughed by horse power at less than 15s. per acre.

Mr. Eddington has announced that the steam plough will be at work this week on Mr. Perry's farm. It is therefore probable many of the neighboring agriculturists will avail themselves of the opportunity of witnessing its operation.—*Mark Lane Express.*

Fowls—Food, &c.—When fowls are confined to a narrow space they require much care and attention to supply them with all kinds of food which they collect when running at large; and without care to supply their wants, they will not be profitable. When running at large, as they please, they devour many insects, eat gravel, lime and various kinds of herbage, seeds of various kinds, and many other things which we cannot discriminate, though we look on while they select their food.

In winter, when fowls have less access to the ground, or when they are confined in small enclosures, they have less opportunity to select the mineral substances which they require. Hence an artificial supply becomes necessary. How shall this be given? By placing the articles within their reach, so that they may take voluntarily just the quantity to which they are prompted by nature. Place old lime-mortar, bones, oyster or clam shells, broken fine, where the fowls can readily pick them up. It has been ascertained that if you mix with their food a sufficient quantity of egg shells, broken bones, oyster shells, and effete lime, which they eat greedily when so mixed, they will lay twice or thrice as many eggs as before. A well fed fowl is disposed to lay a vast number of eggs, but cannot do so without the materials for the shells, however nourishing in other respects the food may be; indeed, a fowl fed on food and water, free from carbonate of lime, and not finding any in the soil, or in the shape of mortar, which they often eat on the walls, would lay no eggs at all, with the best will in the world. A letter was read a few years ago before the British Association, from M. Sace, of Neufchattel, Switzerland, on account of some experiments in the feeding of fowls. He states, first, that fowls to which a portion of chalk is given with their food, lay eggs the shells of which are remarkable for their porcelain whiteness. By substituting for chalk a calcareous earth, rich in oxide of iron, the shells become of an orange red color. Secondly, he informs us that some hens fed upon barley alone would not lay well, and they will tear off each other's feathers. He then mixed with the barley some feathers chopped, which they eat eagerly and digested freely. By adding milk to their food they began to lay, and ceased plucking out each other's feathers. He concludes that this proceeding arose from the desire of the hens for azote food. An idea prevails with many, that any sort of grain, even if a little damaged, will do for poultry, but this is a grand mistake. A friend of the writer once came very near losing his whole flock of valuable fowls from feeding them with damaged corn, which had been heated. Those who feed largely know better, and invariably make it a rule to feed none but the best. Eggs, if at any time are a luxury, it is in winter, and whatever promotes their production is of interest to the majority of our readers.—*Country Gentleman.*

## Horticultural.

Transplanting Evergreens.—We select the following opportune article on the above subject from our excellent cotemporary. *The Gardeners' Chronicle.* It is from the pen of Mr. Henry Groom.

As great diversity of opinion exists as to the best time for removing evergreens, and having read your article in the *Chronicle* of the 6th ult., on removing Rhododendrons, &c., perhaps the following facts may not be uninteresting to your readers. I have long been of opinion that summer was the best time for the operation, but never having had the opportunity until the last few years of testing it to any extent, it merely remained an opinion. During the last three years I have tested it most thoroughly, and have no hesitation in saying that the months of June, July, and August are the best three months in the year for the operation. We have transplanted many hundreds at the time named, and mostly of a large size, Hollies, for instance, more than 20 feet high; Pinuses (generally bad to manage) from 15 to 20 feet high—not lost one; Deodars, 15 feet; Araucarias, 5 feet; Hemlock Spruces, 10 feet; Common Spruces, 20 feet; many plants of Arborvitæ, 10 feet; Yews, 15 feet; very many Portugal Laurels, from 7 to 8 feet high, and 10 feet through; Berberis, many 7 feet high; Phillyreas, Arbutus, Irish Yews, &c., of rather smaller sizes. Our loss has never in any of the three years exceeded one in fifty, and in almost every case the cause of failure could be easily explained. With the

majority of the plants not the least sign was visible of their having been transplanted; the very young growth of some removed earliest in the season would sometimes droop during very hot sunshine, but a good sprinkling with water over head from the garden engine soon put all right again. Our practice has been to give a thorough watering at the time of planting, both to the roots and leaves, and to continue watering the foliage every evening for a week or ten days; by that time the plant is perfectly safe, and will require little further attention, with the exception perhaps of one or two good waterings at the root should the weather prove very dry. At the season named, when a plant does fail, it is generally within a week from being planted, and can consequently be easily replaced, whilst the operation is in hand, thus making any after disturbance of the ground unnecessary, a great point generally where the plants have to be removed a considerable distance, thus necessitating their being out of the ground for a considerable time (more than a day and a night for instance); perhaps rather later in the season, say September, might be safer, as the roots would be less liable than during the hotter months to get dried sufficiently to injure the plants. Nearly the whole of the evergreens planted at this place during the last three years have been merely removed from one part of the grounds to another; in nearly every instance they have been planted the same day as they were taken up, and so little do they show any sign of having been removed, that a stranger would never for an instant suppose that such had been the case. In fact several who have seen them lately could scarcely believe that plants of such a size had been so recently planted. We have removed plants of a similar size at nearly all times of the year; but at no other period can anything like the same amount of success be obtained—at no other time do they appear to "push away" with the same "freeness." Many of the large Yews, Deodars, and similar things, removed this summer, have made a beautiful growth since being planted; and on baring down to the roots two or three weeks after planting, we have found thousands of "rootlets" actively at work, leaving little room to doubt that the plants would soon be in a more robust state of health than they would have been had they never been moved. As to Rhododendrons, we have planted many hundreds at nearly all times in the year, very many of a large size this last June, and I not recollect ever having lost one. Should any of your readers doubt these facts, they are at liberty to come and see for themselves- So fully am I satisfied of the three months named being the best time for removing evergreens of every description, that I have no hesitation in predicting that in a very short time it will become general to transplant at that season.

Grape growing in the latitude of Canada.—An opinion prevails that this luscious fruit cannot be ripened in the open air in this latitude—this we are confident is erroneous. Some few days since we saw and tasted, in the office of Dr. Kellogg, some native grapes grown at Plattsburgh, in the nurseries of John W. Bailey, Esq., and though this locality is a full degree north of our own, they are fully ripe, and some specimens of the kinds, known as the Delaware, Diana, Northern, Muscadine, and Cowan, particularly the two former, were quite equal to any grape grown under glass we have ever tasted. We also saw and tasted specimens of the Diana ripened on vines received from Plattsburg, and planted in the Doctor's grounds in the fall of 1858. Several vines of the native varieties known as the Clinton and Isabella (which are said by all Horticulturists to be full three weeks later than the former varieties) growing on the premises of Joseph Newman, Esq., have ripened their fruit even this season, so unusually cold, and a luxuriant Isabella vine on the premises of Mr. Knapp has ripened bushels of most luscious fruit, for two years past. If such fruit as this can be matured here, and experience shows that it can, every one who has a rood of ground should plant a vine, and protect it for a few seasons and it will make ample returns.—*Port Hope Guide.*

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Good Cider.—The following recipe for improving cider, we copy from the *Boston Cultivator.* Let it be noted that *Sulphite* is a very different thing from *Sulphate* of Lime—the latter being the common ground plaster or gypsum. The applicability of the *Sulphite* to the purpose of stopping the fermentation, is in fact due to that which constitutes its difference chemically from the Sulphate. It is precisely because *it is no* Sulphate that it answers the purpose of checking fermentation.—*Am. Farmer.*

THE

# Canadian Agriculturist,

AND

# JOURNAL OF THE BOARD OF AGRICULTURE

OF UPPER CANADA.

VOL. XI. TORONTO, DECEMBER, 1859. No. 12.

## THE *AGRICULTURIST.*

It was intimated in our last number that it had been resolved upon to issue this journal twice a month, instead of once, commencing with the New Year; and that important improvements were contemplated, which would materially enhance its value, without increasing the price. We will now refer to these intended changes somewhat in detail.

It has been found that a monthly publication representing the Agricultural interests of Upper Canada, appears at too long an interval to afford that freshness and copiousness of intelligence, on which the interest and value of such periodicals in a great measure depend. A fortnightly publication, it is hoped, will meet this want, and enable its conductors to keep its readers posted up, with the least possible delay, in the more important facts and improvements of agricultural progress, not only on this continent but throughout the world. The agricultural journals both of Europe and America will be carefully examined for the purpose of giving our readers in a condensed and agreeable form whatever is new and important in their pages. Special attention will be given to our British American possessions, which the hand of Providence seems to be rapidly forming into an advanced and wide embracing nationality, that is destined to occupy no subordinate position on this extensive continent. In our columns will be recorded not only the agricultural, but the general, industrial, and social progress of Canada, more especially of this western portion, of which this journal may be considered as an official record. Although we shall continue to study not to trench on the domain of the newspaper, and steer clear of party politics, yet any information relative to the social and industrial state and progress of the country, and whatever may tend to point out the best and speediest way of developing its resources, will always find a welcome in our pages.

The reports of, and essays obtained by the Board of Agriculture, with condensed and systematic statements of the proceedings of Agricultural Societies compiled from their official returns, will continue to constitute a part of this

journal; and by adopting a fortnightly mode of publishing, much greater facilities will be afforded the Board of communicating with societies, and of inserting the communications, and answering the inquiries of correspondents. The latter, we trust, will soon become a more prominent and useful feature of the journal.

It is also intended to afford more space to Horticulture and the Mechanic and Manufacturing arts. Gardening and farming are most intimately related, —both being based on the same scientific principles—and in many ways they can be made mutually to assist each other. Our pages, therefore, will always be open to contributions of this character, and we earnestly invite our Horticulturists, and all who feel interested in the progress of this refining and important pursuit, to favour us with contributions.

With regard to the mechanical arts—particularly those which relate to the construction of Agricultural implements and machines—we shall devote considerable space, and give illustrative wood cuts. There are now in Canada several firms that manufacture agricultural tools, and other kinds of machinery of excellent workmanship, and we shall always be happy to render them any aid that our journal can afford. The same remarks, we wish our mechanics and manufacturers in general to understand, apply to them. Our agriculture and domestic manufactures are intimately connected and mutually dependant; and it is impossible for the farmer to over estimate the advantages of a good home market. It is by encouraging those great interests, and regarding them not as hostile to each other, but as forming the necessary parts of one harmonious whole, that we but seek to promote the true welfare and happiness of the country.

We shall not forget to keep our readers informed of the state of the markets, and, at the proper season, the prospects of the growing crops, both at home and abroad, together with all such matters as possess an interest or money value to our farmers and mechanics.

To carry out these objects as fully as is desirable, it must be obvious that the co-operation of the parties interested in them is absolutely necessary. We therefore earnestly invite contributions on the various subjects embraced by this journal, in order to make it a full and faithful record of the material and social progress of the country.

The *Agriculturist* will, as heretofore, consist of two parts, the "Journal" and the "Transactions" of the Board; printed, however, on the same sheet, but in such a way that they can be easily separated. The "Transactions" being a publication of an official character, and depending for its contents upon certain official proceedings which usually do not terminate till after the end of the year, cannot conveniently be brought to a close each year at the same time with the "Journal." The conclusion of the volume of the "Transactions" will, therefore, have to overlap the commencement of the volume of the "Journal." The concluding pages of the "Transactions" of 1859, will be issued to subscribers along with the early numbers of the "Journal" of 1860. But this will scarcely be any real inconvenience, as the great majority of subscribers will renew their names on the books each year, and those who wish to bind the two parts of the publication together will only have to wait a few week till the "Transactions" are completed.

## TO OUR SUBSCRIBERS.

We beg again to direct the attention of our readers to the terms of subscription for the year 1860, as advertised on the cover. The money premiums are offered with the view of affording a slight remuneration, or rather complimentary distinction, in addition to the ordinary ten per cent bonus, to those who may send us in good lists of subscribers. The readers of the *Agriculturist* are aware that with the termination of the year our subscription list is at an end. No copies of the next year's numbers are despatched till ordered. We have therefore to say Farewell, for the present, to the thousands of readers who have accompanied us during the year now closing, but we also have great pleasure in wishing them a "Merry Christmas and Happy New Year," and hope soon to see their names, with a good many new ones along with them, on our books again. And the sooner subscriptions are renewed, the more convenient and satisfactory it will be, as we shall then know what number of copies we ought to print.

The premiums will be announced, with the number of subscriptions for which they are given, immediately after the 1st of April, and the amount forwarded to the parties.

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## PRIZES FOR REPORTS.

With the view of inducing the officers of Agricultural Societies to collect and embody in their annual reports more information of a character which will be valuable and interesting to the public at large, and to persons residing in other countries, than has heretofore been the case, and to draw up the reports in a more generally correct and painstaking style than the majority of those heretofore received, the Board of Agriculture offers the following premiums:—

For the best County Agricultural Society Report, adopted at the Annual Meeting and transmitted to this office before or on the 1st April next, a prize of ..... $30 00
For the second best do..... 20 00
For the third best do..... 15 00
For the fourth best do..... 10 00

For the best Township Society Report adopted at the Annual Meeting and forwarded as above along with the report of the County Society ..... $20 00
For the second best do ..... 15 00
For the third best do..... 10 00
For the fourth best do..... 5 00

By reference to the 42nd and 47th clauses of the Act, which was given in full in the April number of the Journal and Transactions, 1858, it will be seen that each report should consist of four distinct parts:—

1. The names of all the members of the Society, with the amount paid by each set opposite his name.

2. The names of all persons to whom premiums were awarded, with the amount of premium, and the animal or article for which it was given.

3. Such remarks and suggestions upon the Agriculture and Horticulture of the county or township, and arts and manufactures therein, as the directors shall be enabled to offer.

4. A detailed statement of the receipts and disbursements of the Society during the year. (If this is voluminous, a condensed statement or balance sheet ought to be ad-

ded, showing the amount of receipts and expenditure under the several principal headings.)

It is in part 3 of the report, as above detailed, that improvement is mainly desirable. The majority of the reports have hertofore been sent in, without any attention being paid to this requirement of the Act at all. The remarks ought to be of such a character as to give the reader a correct idea, so far as possible, of the actual condition and progress of Agriculture, Horticulture, &c., in the County or Township, with the profits and advantages offered by those pursuits. And in order to do this clearly, the report ought not to embody vague generalities, so much as specific statements of facts. For instance, the generally prevailing character of the soil may be stated, the average value per acre, as proved by actual sales, the prevailing system of cultivating and cropping the land, the actual returns of the various kinds of crops as nearly as can be estimated per acre, the current rate of wages for laborers and mechanics, or any other information of a similar character. If the crops have been injured by any insect or other cause of blight, state the amount of damage done, and whether greater or less than other years. State the amount of improvement taking place in the different heads of cattle, sheep, &c., and what breeds are believed to best adapted to the locality. Give the details, with the cost and results, of experiments in breeding or feeding cattle for sale, or of dairy operations; or of sheep farming. If any farmer has commenced the thorough draining of his land, the cultivating root crops extensively, or any other ameliorating improvement, state the fact and the results, and the supposed amount of such improvement taking place in the county or township. State any improvement that may be taking place in the introduction of Agricultural implements, the progress making in the cultivation of fruit trees, or other horticular operations, and the success attending it. If there is any particular improvement necessary in farm management, or for the proper developement of the capabilities of the soil, let it be stated. The leading features of the annual exhibition, as a display of agricultural and mechanical products, and as showing the interest taken in the progress of improvements by the residents in the county or township may also be briefly referred to. In short, the report should be such a concise and faithful sketch, supported by such brief details and statistics, as would enable the reader at a distance to estimate its general progress and capabilities correctly.

It is not necessary that the portion of the reports here referred to should be very long. For a County, from ten to twenty, and for a Township from six to twelve pages of ordinary writing on foolscap paper would afford abundant space. It is not desired, however, to restrict the reports in any way. The reports, or so much of them as may be considered suitable, will be published in the Transactions, and the names of the successful competitors will be immediately announced after the prizes have been adjudged. The amount of prize will be forwarded, unless in the case of instructions to the contrary, to the Secretary or other officer of the Society, from whom the report shall have been received. It is hoped that these reports will furnish a large amount of interesting and useful information for publication in the Transactions.

Should there not be considered to be sufficient time, after receiving this notice, to get up the information, the report might be adopted *pro forma*, and afterwards amended, with the consent of the Directors. It is highly desirable, however, that the reports should all be forwarded to the Board of Agriculture, if possible, some time prior to the 1st of April, the date fixed by law.

HUGH C. THOMSON,
Sec'y Board of Agriculture.

Toronto, Dec. 15, 1859.

# Correspondence.

## COWS *vs.* SHEEP.

*(To the Editor of the Agriculturist.)*

Sir,—As you have offered your paper as a medium for agriculturists generally, I write the following, thinking it may draw the attention of some and lead them to think which are the most profitable, Cows or Sheep? Every farmer knows the value of the cow, and the little one can appreciate her as well as the older ones. I would state, that every farmer should keep enough for his own use, for I consider her an indispensible article. But whether he should keep more than would keep his family in milk and butter is a query that I want to have unraveled. A farmer that lives near a city or a town and can sell milk, I say keep as many as possible, for nothing pays better. Farmers that live a distance from town and near a railroad, would do well to consider which are the most profitable, cattle or sheep? I will take a cow valued at $20 and calculated her year's produce in butter to be 130 lbs., at 12½ cents per lb. I consider that one cow will eat as much as five sheep, therefore I will take five lambs at $2 each, they will shear 30 lbs., of wool at 27 cents per lb., and increase in weight to the amount of $2 each, the capital needed is only one half. Their profits would stand as follows:—

| | |
|---|---|
| Cow—130 lbs. Butter at 12½ cents per lb. | $16 25 |
| Lambs—Wool, 30 lbs., at 25 cents per pound; increase in value, $2 each; interest on $10, at 10 per cent, $1 | 18 50 |
| Balance in favour of Sheep | 2 25 |

Some would say that the milk is a great consideration. True, so is labour. What man, woman or child would bring the cow from the field, milk, churn and market the butter for the milk? None.

We will take it another way. Suppose we wanted to raise stock, the cow would produce almost as much butter, and her calf could be raised with the milk. Her butter at the same rate as above, would be $16 25. Take five ewes valued at $4 each, they would raise five lambs and shear four lbs. wool, each at 25 cents, $5; at 18 months old the lambs would be worth $20. The cows offspring would be worth about $12. The account would stand something like this:—

| | | |
|---|---|---|
| Cow—first year's butter | $16 25 | |
| Her offspring at 18 months old | 12 00 | |
| | | $28 25 |
| 5 Ewes wool | $5 00 | |
| 5 Lambs " | 7 50 | |
| 5 " valued at $4 each | 20 00 | |
| | | $32 50 |
| Balance in favour of sheep for raising stock | | $4 25 |

There is another consideration in favour of sheep. In the first instance a person only wants half the capital, which is a great consideration to some; in the second instance sheep at 18 months old are fit either for the butcher or for raising stock. The Cow's offspring, on the contrary, is neither fit for the one or the other.

If you think the above worthy of attention you will hear from me occasionally.

Yours, &c.,

R. H. SARVIS.

Hibbert, County of Perth,
December 6th, 1859.

## MILLET.

WHITBY, December 6th, 1859.

SIR,—When at the Crystal Palace in Toronto, in 1858, I saw a man at the north west corner working amongst what I supposed to be Millet. I entered into conversation with him and purchased only half a package of his seed; also, I carried off one or more of his bills in which he stated great things: such as that it (the Millet) would yield from 40 to 50 bushels, of 60 lbs. per bushel of seed, and two tons of fodder equal to clover hay. I thought if only half true it was a great boon to Canada.

Early in May, 1859, I made one sowing, and again about the middle of May made another. The ever-to-be-remembered frost of June, killed every green thing in our vicinity, and also my Millet. I sowed again on the Monday after the frost; that sowing had not ripened yet, nor would be worth anything for seed, as the canary birds eat the seed in preferance to anything they can get at, and having secured enough for my own sowing I cut it up (the third sowing) without regret. Before cutting, I carried some to our local show or seed fair at Columbus; it had attained to six feet in height. I cut on the 11th of September and weighed on the 17th, considering the stuff dry enough to store. What grew on half a rod weighed 34 lbs., equal to 5 tons, 8 cwts,, 3 quarters, 13 lbs., equal to at least three good crops of hay as this year goes. It should be mentioned that I cut twelve inches from the ground—as I do not consider stubble fodder—so as to give a fair estimate of what may be grown upon an acre. Moreover it comes at a season very suitable for farmers, as from the beginning of August, until their stubbles are cleared, they are generally short of pasture, especially in cereal growing districts, and one acre of this fodder cut and fed green, or, as we would say, soiled, would be a boon.

Now, Sir, as there is not within my ken any of this excellent substitute for pasture, I will feel obliged if you will give publicity to this hint; and it may so happen that some one may condescend to try next year and prove what is above asserted. Having said often that seeing only can be believing, they may try for themselves, and then they will see and believe.

I think I hear some one say, as was said on a former occasion when I was recommending a given kind of seed, "He has a great quantity to sell, and that makes him recommend it." I answer in the negative; nor can I tell where the seed may be obtained, as that may help to the inquiry. Scarce articles are most valued.

In 1860 you may hear something of the Alsike clover, unless some more able pen condescend to write. And also something about the Kansas wheat.

Yours, &c.

A SUBSCRIBER.

# Agricultural Intelligence.

## EPIDEMIC COLDS OR INFLUENZA, AND INFLAMMATION OF THE LUNGS OF CATTLE.

This disease is very frequent among horned cattle, and is produced by a variety of causes. Cold, dry, harsh winds are severely felt, by closing the pores of the skin, and checking perspiration. It is also frequently brought on by beasts drinking cold water when they are overheated. It is sometimes produced by turning them into fresh pastures, when their stomachs being overcharged with herbage, the pressure produced on the lungs is very great; the sizy and viscid part of the blood becomes crassus, or thick, obstructs the vessels, and brings on a troublesome cough or wheezing (a moaning like). These symptoms are a sure indication of an affection of the lungs. The discharge from the nostrils and mouth continues to be copious; the inflammatory symptoms make but little progress; but as soon as this discharge is stopped, the inflammation increases, and if not timely checked will soon terminate in the animal's dissolution.—Symptoms of inflammation taking place are discovered by the alternate heat or cold of the body—in the extremities for the most part, especially the ears, horns, and feet. If the animal be in a low condition, weak, and much debilitated, bleeding is seldom necessary; but if in a high condition, and the fever increases, and the body feels hot and

dry, and the breathing be the same; if the eyes are much inflamed, and the white has a yellow appearance, bleeding becomes highly necessary; and from two to four quarts of blood may be taken away, according to the strength and condition of the animal; if found necessary let it be repeated, or a small quantity may be taken away every day. Sometimes this disease has a false appearance, the fever and heat are scarcely perceptible; at other times it seems rapid in its progress. This disease appears in a great measure to proceed from a deficiency of bodily vigour; and a consequent inability of carrying on a due circulation through the vessels. The blood, through these impediments, becomes surcharged with pituitous lentor, so that the glands cease to secrete the bile, which is not poured into the intestines, but becomes deposited on the skin. Hence is produced the jaundice, which is known by the yellowness of the eyes and different parts of the body. The cure must be attempted according to the symptoms already stated.

The costive state of the animal's body, which accompanies this disease, must be strictly attended to. First give the following purging drink:—

| | |
|---|---|
| Glauber Salts | 1 lb. |
| Nitre, in powder | 1 oz. |
| Ginger, in powder | 1 oz. |

Pour three pints of boiling water over the above, and give it lukewarm. In most cases this will be found sufficient for a full grown animal. Should it fail in its operation, one half of the dose may be given, night and morning, until the desired effect is obtained. The above drench will generally operate in twenty hours, or even less; if not, proceed as I have directed, and after the bowels are properly opened, give the following drink:—

| | |
|---|---|
| Emetic tartar | 1 drachm. |
| Pulvis digitalis recentis | 1 .. |
| Gum camphor | 2 .. |
| Salt of Tartar | ½oz. |
| Nitre, in powder | 1oz. |

Mix; give it in a pint or quart of warm ale, and repeat one half of it every eight hours. If the fever continue after the intestines have been evacuated, it will be necessary to take some blood, the quantity of which must be regulated according to the disease and habit of body of the animal, and the purging drink repeated to prevent costiveness. The drink to be administered after the purging drink will be found to operate powerfully in removing the disease, by promoting insensible perspiration and in dissolving and evacuating the phlegm in the ventricles and intestines: also opening and cleansing the vessels of the lungs, promoting a discharge of urine, and lowering the velocity and force of pulse. If any symptoms of the disease should still remain, it will be proper to give the following drink:—

| | |
|---|---|
| Dried squils, in powder | 2 drachms. |
| Gum myrrh, in powder | 2 .. |
| Salt of tartar | 2 .. |
| Valerian root, in powder | 2oz. |
| Balsam of copaiva | 2.. |
| Sulphur | 1.. |
| Nitre, in powder | 1.. |
| Tincture of opium | ½.. |

The balsam of copaiva, sulphur, and salt of tartar, ought first to be well rubbed together in a mortar, then add the other ingredients, and lastly a quart of warm ale, after which it may be given to the beast.

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Bracing Mixture for Strains.—Take, old verjuice, or good wine vinegar, one quart; camphorated spirit of wine, four ounces; goulard water, two ounces; spirit of turpentine, two ounces; oil of origanum, one ounce. Mix, and put them into a bottle for use. This mixture will cool and brace the sinews greatly. After it has been well rubbed in on the part affected, take a linen bandage, or roller, two or three yards long, and apply it round the leg, upon the swelled tendon, in order to strengthen and brace the part.

## GENERAL OBSERVATIONS ON THE SCOTTISH BREEDS OF CATTLE.

Some of the Scottish breeds from being either well adapted for certain localities, or celebrated for peculiar properties, it is advisable to keep pure; while with others no question can arise as to the propriety of crossing, on even complete amalgamation with other breeds. On these points the following remarks, the result of long observation and experience, may perhaps prove useful.

*The Galloways.*—This breed should be kept pure, although no doubt splendid animals may be, and indeed have been, bred from Galloway cows and short-horned bulls. The fact, however, of the breed being a favorite in Smithfield market, and realizing the top price, is a sufficient reason for maintaining its purity.

*The Ayrshires.*—This breed having attained a world-wide celebrity as dairy stock, should also be kept pure.

*The West Highlander.*—To maintain the purity of this breed is a matter of primary importance, as no other cattle can thrive in the Western Highlands and Isles. Efforts should also be made to introduce them in those districts now occupied by that coarse and inferior breed, the North Highlanders. The high district of Ross-shire, the Lewis, Sutherland and Caithness, the eastern parts of Inverness-shire and high districts running south as far as Forfar-shire, are well adapted for the West Highland cattle, where they would be found to thrive well. From their hardy constitutions and habits, they can withstand almost any degree of cold in the open air, foraging for their food in woods and glens even in pretty deep snow. The extension of this breed to the Highland district generally, could be effected if landlords were to lay down stringent rules and regulations with this object in view; but as the interest of landlord and tenant is identical, a plan might easily be carried out for effecting this improvement, in which there is no doubt, the tenant would readily acquiesce. Suppose a certain district to contain fifty small tenants, the proprietor of which is anxious to introduce an improved breed of cattle. Let him send a competent and skilful man to Dumbarton, or some other market where the best West Highlanders are shewn, to purchase 100 two-year-old heifers of a good stock, these should be divided among the tenants and charged at cost price, including expenses. Two or three young bulls to serve these heifers should also be provided, but at the expense of the landlord, a fair price being charged for their use. This arrangement would soon effect the desired change, care being taken that the old bulls were cut off. A couple of years would clear off the old breed and its place being supplied by a new race worth at least £1 per head more than the old, the stock would command a ready market.

*The Zetlanders*—This breed is also recommended to be kept pure, for the reasons before set forth under this head.

*The Fife, Angus, Aberdeen, Banff, Moray* and other unenumerated breeds, should be crossed with short-horns, wherever the climate is suitable; it being now an established fact, that either pure short-horns or crosses are more profitable than the original cattle in all those arable and feeding districts on the east and north east of Scotland.—*Dickson's Breeding and Management of Live Stock.*

## GALLS AND WOUNDS ON HORSES.

Galls on the Skin.—A horse newly put to work, and working in a new harness, or under a new saddle, which touches parts not inured to the pressure, is very likely to have the skin of the back and shoulders abraded.

Unless there is an absolute necessity for the animal to be used, he should, in all cases, be allowed a few days rest, that the wound may heal and become somewhat hard; even then, until the hair has fairly grown out, the greatest care must be used to see that the chafing of the harness is entirely obviated, as when the skin is in the least sore it is peculiarly susceptible to irritation. When a gall is fresh and bleeding, nothing will so soon dry it and cause it to cicatrise, as a little dry table salt sprinkled upon it.

After the wound is in a measure healed, if it be absolutely necessary to use the horse, a careful examination of the harness or saddle should be made, and padding should be

taken out, or parts of the leather removed, to prevent any part of it from touching the wound. To prevent friction, when caused by the saddle or collar, there is nothing so useful as a piece of raw sheep-skin, worn with the *flesh* side next to the horse. In riding long journeys, it is the safest plan to have such protection always under the saddle.

If the chafing is caused by loose straps striking and rubbing against the skin, they should be covered with sheep-skin having its *woolly* side turned toward the horse.

Saddle galls are unlikely to occur, if the saddle fits the back, and is left on the horse for at least one hour (and it had better remain on two or three hours) after he is put into the stable. If convenient, he should be saddled half an hour before going out, as it is much better that the saddle should become warm, or slightly softened by the insensible perspiration of the back, before the rider's weight is put upon it.

The following is a good lotion for galls of the skin:

| | |
|---|---|
| Sal ammoniac, | 1 ounce. |
| Vinegar, | 4 |
| Spirits of Wine, | 2 |
| Tincture of Arnica, | 2 drachms. |
| Water, | half a pint. |

Mix.

If no other remedy is used, a mixture of burnt leather, gunpowder, and lard should be occasionally rubbed on the gall to prevent the growth of white hair.

Sit-fasts, and their treatment, are thus described by Stonehenge:

"Sit-fast is merely a name for an obstinate and callous galled-sore, which has repeatedly been rubbed by the saddle, and has become leathery, and disinclined to heal. If time can be allowed, there is nothing like a small quantity of blistering ointment rubbed on; or the application of a small piece of fused potassa; or even the nitrate of silver in substance, or blue-stone; all of which will produce a new action in the part, and if followed by rest from the saddle, will generally effect a cure."

Flesh Wounds.—The following, on the treatment of ordinary flesh wounds, is from Dadd's Modern Horse Doctor:

"Incised wounds are those inflicted by sharp instruments. On the human body they often heal without any subsequent inflammation beyond what nature sets up in the restorative process; but the difficulty with the horse is, that we cannot always keep the parts in contact, and therefore it is not so easy to unite them. * * If the wound is seen immediately after infliction, and there seems to be the least probability of healing by first intention, we place a twitch on the horse's nose, and examine the part. If there be found neither dirt nor foreign body of any kind, the blood had better not be washed off; for this is the best healing material in the world. The edges are then to be brought together by interrupted sutures, taking care not to include the hair between the edges of the wound, for that would effectually prevent union. Nothing more is needed but to secure the animal so that he cannot get at it. If he is to be kept in the stable, without exercise for any length of time, he had better be put on half diet.

"Contused wounds are generally occasioned by hooks, or some blunt body connected with the harness or vehicle. They generally leave a gaping wound with bruised edges. We have only to remember that nature possesses the power of repairing injuries of this kind—of filling up the parts and covering them with new skin; all we have to do is, to attend to the general health of the animal, and keep the wound in a healthy condition. Our usual application is the compound tincture of myrrh. If the part assume an unhealthy aspect, a charcoal poultice will rectify that. If such cannot be applied, owing to the situation of the wound, dress it with pyroligneous acid.—*Herbert's Hints to Housekeepers.*

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Definition of Soils.—In common phraseology, soils are characterized by various, and, in many instances, very vague terms, such as heavy, light, stiff, open, tenacious, porous, wet, dry, warm, cold, etc. These always convey certain important characteristics, but are differently understood by different persons. Soils are properly classified according to the presence, in greater or less proportion, of certain bases, such as clay lime, sand, and vegetable matter, these being important constituents.

*A Pure Clay*—is a soil in which very little sandy, silicious matter is found; accurately it consists of a chemical combination of about sixty parts of silica and forty of alumina, with a trace of oxide of iron.

*A Strong Clay*—contains about twenty parts in one hundred of sand, capable of separation.

*A Clay Loam*—contains a large proportion of sand, easily separated.

*A Loam*—contains one-half or more sand, readily separable.

*A Sandy Loam*—contains eight or nine-tenths sand.

*A Sandy Soil*—contains one-tenth or less of clay.

The above are the varieties of soil as regards the base *clay*.

In reference to the second important constituent, *lime*, we have a *marl*, containing from five to twenty per cent of lime.

*A Calcareous Soil*—in which lime is the predominate constituent. Marls are always characterized as sandy, loamy or clay marls, according to the portion of sand.

In respect to decayed vegetable matter, there are soils which owe their character to this. Such are our swamp soils or *muck*, in which masses of ferns and the roots of deed grasses predominate, forming a black fibrous mass. *Vegetable or leaf-mold*, formed by the decay of leaves, found in our wood-lands, is one of the most valuable items to the gardener. Muck, however, can not be used with safety in compost with other soils, until it has been meliorated by exposure to the sun and air, to the admixture of some alkali it contains; potash, soda, lime or magnesia are the most efficacious alkalies used, and are found in several forms, such as wood ashes, common salt, etc. The term *peat* is frequently used in speaking of soils, resulting from decayed vegetable matter; the term *muck* has a very different signification with our English fellow-laborers, though the popular phrase with us.—*Germantown Telegraph.*

Food for Horses.—The *Working Farmer* says:—Carrots have a value far beyond that which can be attributed to the mere nutriment they contain, for in addition to what they furnish in this way, they contain a quantity of pectic acid, and this carries the property of gelatinizing the vegetable and animal matters held in solution, and thus enabling the peristaltic motion of the intestines to seize hold of their contents, so digestion of all matters of food is perfected by the presence of carrots. It is for this reason that a bushel of carrots and a bushel of oats, are better for the horse than two bushels of oats; not from the nutritious matter contained in the carrot, but in part from the power of the carrot to cause all the nutriment of the oats to be appropriated in the making of muscle, instead of part of it being evacuated in excrement. This action is true in regard to all the vegetable substances which go to make up the variety of food for animals, and the very instinct of every animal gives evidence of this truth.

# Horticultural.

## THE EFFECTS OF TREES ON BUILDINGS.

Trees, whether single or in groups, whether young or old, are obviously of the greatest use in accompanying buildings of every kind; but there seems to be a much closer union between them and low buildings. Cottages appear to repose under their shade, to be protected, sometimes supported by them; and they, on the other hand, hang over and embrace the cottage with their branches; it seems as if they could never have been separated from each other; and there would be a sort of cruelty in dividing them. If trees thus adorn the cottage, that in return, by the contrast of its form and colour no less enhances the peculiar beauties of vegetation, and often fixes the attention on trees, which, in other situations, would be unnoticed; no wonder, then, if we are struck with any of the beautiful exotics when so placed—with an acacia, a pine, a cedar, that shade part of a village house—with an arbutus, or a cluster of lilacs, over-topping the walls or the pales of its garden. In those cases, besides the real and less familiar beauty of such trees and shrubs and the effect of contrast, there is another circumstance that helps to attract and fix attention; they are separated from that infinite variety of similar productions, which, while it amuses, distracts the eye in shrubberries and collections of exotics.

But though trees and shrubs of every kind have a peculiar and distinguished effect, in consequence of accompanying and being accompanied by the houses of a village, there is another tribe of plants which gain still more by such a situation, and which,

indeed, no other can shew to such advantage; I mean the various sorts of climbing plants. All of them, in their native soils and in their wild state, twist themselves round trees or bushes, mixing their foliage with that of their supporters, enriching their summits, or hanging in festoons from their branches; nor can anything be more beautiful than such a union. But of the exotic kinds, few among those that endure the open air will bear the drip of trees so as to flourish amidst their boughs; they, therefore, are generally seen nailed against a flat wall, or supported by a pole, neither of which are very favourable to their effect. As almost all of them require a free circulation of air, many of them warmth and shelter, the best situation, in regard to their health and effect, seems to be a projection from a building. Porticoes of regular architecture are too costly to be made supporters of climbing plants, however beautiful their union might be; and the same thing may in general be said of temples and ornamental buildings in gardens and pleasure grounds. Other buildings might be made expressly for that purpose; but it would be difficult to contrive such a variety of supports of different characters as may be found in a village, or which if not found there, may always be added to the houses of it. A great diversity of sudden and singular projections is to be met with in all old houses, that have been added to them at different times; but what I principally allude to are porches, of which so many models may be taken, both from real buildings and from pictures. Wherever honeysuckles, vines, jasmine, grow over them, they attract and please every eye; and the same sort of beautiful effect (not indeed more beautiful) would be produced by the less common exotic climbers. It seldom happens that the taste of the mere collector of curious plants, and that of the picturesque improver, can be made to accord so well as in this instance. Village houses generally afford many warm aspects and sheltered situations, where the less hardy climbers will flourish, and, of course, a still greater number of exposed walls and projections, against which those that are perfectly hardy may be placed; and from the irregular shape of many of the houses, there are various divisions and compartments of various sizes and heights, by means of which a collector of climbing plants might arrange them according to their different degrees of hardiness and luxuriancy; so that while he was indulging his favorite passion, he would be adding the most engaging ornaments to the pleasing of all rural scenes. In all climbing plants there is so much beauty, arising either from their flowers, their foliage, or from ther loose and flexible manner of growing, that no arrangement could well prevent them from giving pleasure to the lover of painting, as well as to every spectator; for the detail would be in a high degree interesting, whether the plants were considered in a botanical light, as detatched flourishing specimens, or in a picturesque light, as exhibiting a variety of new combinations of form and colour; the different vegetable tints being sometimes blended with the rich, mellow hues of old stone or wood-work, sometimes with the neatness and the fresh colors of new work. Sometimes, too, the more light and delicate leaves and brilliant flowers would appear alone; at other times mixed and twined with large, broad leaves either jagged and deeply indented, such as the vine, or entire as those of the Aristolochia. Where there are brick houses in villages, we sometimes see fruit trees against them, while honeysuckles or jasmines are trained over the porch or the trellis before the door. This mixture of utility with ornament, of boughs which are nailed close to the wall with those which hang loosely over a projection, forms a pleasing variety. Indeed, fruit trees, which in every situation give the cheerfulest idea, are peculiarly adapted to villages; for as they exhibit, both in Spring and Autumn, a striking image of fertility, they are the most proper, and indeed the most useful, accompaniments to habitations. Considered likewise in another point of view, they are seldom seen to such advantage in other situations. The effect of blossoms, however gay and cheerful, is often spotty and glaring; but I have frequently observed that when they are seen near stone buildings, or houses of a light colour, the whole is upon the same scale of colouring, and produces a highly brilliant but harmonious picture.—Should the taste of improvers be turned towards the embellishment of villages, a variety of such standard and fruit trees might be introduced as are remarkable in their different kinds, not only for their goodness, but for the beauty of their blossoms and fruit.—*Price on the Picturesque.*

Keeping Cider Sweet.—In the *Cultivator* for September 1st, a correspondent asks for a recipe for keeping cider. Put into twenty gallons of new cider, 1 lb. of black mustard seed, and you can have your cider at six months old as sweet as when first made.—*Ohio Cultivator.*

Landscape Engineering.—Sir Walter Scott, in his prose works, considers the name "Landscape Gardening," as expressing the object of that profession, to be an unfortunate selection, inappropriate and not conveying a true meaning; the result of which has been to give it a mechanical turn, and, as we see, followed by those who possess none of the requisite qualifications.

The practice of Landscape Gardening involves a thorough knowledge of so many professions, that it seems almost out of the question for any one person to be master of it; and the nonsense that has heretofore been written about it, to prove that only persons gifted with good taste, artistic appreciation, correct eye, happiness of expression, &c., can hope to be successful, will avail nothing, if the subject is thoroughly sifted and placed upon a proper basis. We do not favor the idea of keeping the principles of the art in obscurity, but believe that the more thoroughly they are understood, the more general will be their application. We are of the opinion that the Gardener who has made himself master of all that relates to the successful cultivation of whatever is deemed useful, beautiful, and ornamental in the vegetable kingdom—if he understands chemistry, geology, botany, and the composition and organization of soils, manures, plants, &c., has done well. He has attained a point which, we fear, few of that calling have yet reached, and the field before him must always continue to reveal new beauties, and call for still further progress.

But when we come to topographical maps, plans, roadways and their construction, drains, grading, bridges, culverts, and the preparation of ornamental grounds, it strikes us forcibly that another profession must be called in to help us to attain the beautiful—to do so in the most economical manner, and to be free from all guess-work and experimental forms. It is not to be presumed that a gardener is familiar with the practical operations of drafting, levelling, surveying, measuring and removing earth-work, curves, tangents, gradients, lines, angles, &c., so necessary to accomplish the useful and beautiful, and a knowledge of which must be acquired before success can be attained. The fact is Landscape Gardening embraces two distinct professions—that of Civil Engineering, or that application of it which might properly be denominated Landscape Engineering; and the ornamental and beautiful display of effects produced by planting, which comes strictly within the gardener's art, and to which the name of "Landscape Gardening" is appropriate. The designing, laying out and grading of grounds, the construction of roads and drains, &c., is but the preparation of the canvass, on which the gardener of taste and ability is to plant his effects.

Copeland, in his valuable work on Country Life, places much importance upon a thorough knowledge of engineering, as of value to the Landscape Gardener; and he is, I believe, the only writer who has alluded to it.

The Central Park of New York is a most admirable example of Landscape Engineering, as are also Greenwood Cemetery, and the Cemetery of the Evergreens near New York. Among private places we may mention "Sunny Side," and "Oak Hill" on the Passaic above Newark, N. J.; "Keewaydin" and "Boulder Hill," near Newburg, and the Parsonage Grounds at New Windsor, N. Y. At the latter place, the drive or turn around in front of the house, was made in the form of a regular mathematical eclipse, whose conjugate and transverse diameters are 24 and 36 feet; having a quantity of earth to dispose of, and to avoid the expense of a long haul, it was determined to raise the center of the ellipse 2½ feet, and to graduate it towards the edges so as to produce a section of a prolate spheroid, (a solid generated by the revolution of an ellipse around its major axis,) the profile of which on the long diameter was a portion of an elliptical curve, and on the short diameter of a circular curve; the entire figure laid on a grade of 1 in 24 feet, sufficient to drain surface water. To perfect its shape with mathematical accuracy, on which depended its true beauty, it became necessary to set grades to guide the workmen, and this gave rise to a series of beautiful problems. It is needless to say that such figures convey a lesson, aside from their usefulness and beauty, while the meaningless and expensive productions of guess work and opinions fail even to please.

A common road, if not the most difficult example in the practice of civil engineering, is one on which every amateur engineer and road builder has utterly failed. It is somewhat questionable whether a man can be found who will admit his ignorance of the construction of a common road, and yet our roads, with scarcely an exception, are most shamefully located, constructed and repaired. There does not appear to be any improvement in this matter. The common road of thirty years ago was as good as the common road of to-day, and except in the vicinity of large cities, are a reproach to the community. The construction of a common road is as much of a science as the con-

struction of a railroad, and yet is not, nor never has been considered of any importance whatever. The civil engineer in his theoretical studies, scarcely ever has his attention called to them, and only acquires a practical knowledge of road building in the pursuit of other branches of his profession. Certain it is, that no one ever deems it necessary to call the services of a practical engineer in any department connected with the production of a common road. In the ornamental grounds of a country estate, the perfection of road building is desirable; they should be located on the most approved principles, and in accordance with the theory of motion; they are for use as well as for beauty, and the closer they approach perfection in the useful, the closer they approach the beautiful. No taste can locate a roadway or give it expression, compared with those infallible mathematical rules which have been assigned for their location. Roadways are the leading features, and convey the first impressions of well kept grounds, and they should be beautiful in their alignment and gradients; they should in fact be model roads from which lessons of value may be learned and applied to the improvement of the common roads of the country. And if gentlemen of wealth would, in the improvement of their estates, endeavor to introduce the highest standard, not only of road building, but of other branches of the constructive art, they would not only add largely to the beauty of their property and increase of their enjoyments, but confer a lasting benefit upon the community at large.—*Country Gentleman.*

A New Hedge Plant.—Ligustrum Vulgare.—In Gray's Botany the following is the description of this plant:

"Leaves elliptical-lanceolate, smooth, thickish, deciduous; berries black—used for low hedges; naturalized in copses by the agencies of birds in E. New-England and New York. May, June."

A writer in the Horticulturist, proposes that this be used as a hedge plant; he says that a good deciduous hedge is still a desideratum, and this he thinks will supply the want. He objects to the Osage Orange and Honey Locust, on the ground that their luxuriant growth renders it quite necessary that they are trimmed at least two times during the summer, that they may be kept in proper order. This, he says, will be too severe a tax upon those who would otherwise have a good hedge. In regard to this new hedge plant the writer thus speaks in its favor:

"Compared with Osage Orange or Honey Locust its growth is slow, but *it grows into a hedge*, and will not require to be headed down for two or three years, as these strong growing plants must be in order to induce side-shoots, and will, under good treatment, form a hedge five feet high as quickly as those of more luxuriant growth, since the upright growth of the latter is in a measure lost for a year or two. The flower of this Ligustrum is much like the hawthorn both in appearance and fragrance, and altogether it is one of the most desirable plants for a shrubbery, although seldom planted. Being a native shrub, it is seldom grown in nurseries to any extent, but as it seeds freely there need be no difficulty in raising it in quantities. I hope to see it become a favorite hedge plant. William Saunders."

The author of the above plea for this new plant as a shrub for hedges, also suggests that the Celtis occidentalis or Nettle tree, would also be a good plant for hedges.—*Country Gentleman.*

The Joy of a Garden.—Think of the morning walk, all coolness and fragrance; think of the mid-day lounge, under embracing branches, where the mind sinks into sweetest dreams, and all our past readings of old lore, poetry, and Holy Writ take shapes, and float before us like realities. Think of the mid-day summer glow of all things, when the parterres burn with colour, and the cool green grass defies the sun to brown one ravel of its mossy carpet; think of the "quiet cigar," all alone in seraphic contemplation; think of the indoor readings of the works of men who have loved gardens, from Bacon to Wordsworth, whose avenues of hollyhocks still remain at Rydal; think of the summer visits to the gardens of friends to make notes of comparison on the trips to noted gardens, not forgetting *fetes* and exhibitions, where the genuine gardener has pleasures that the mere sightseer knows nothing of; think of the pride with which you show your friends over your ground, and display your stock to those that have sympathies kindred with your own; and think of the fame you acquire in your circle as a clever gardener, a man of worth, a gentleman, and a Christian, for you must be all these to love a garden rightly, and then say if there is any pursuit besides this

that can match it in its fulness of joy, that can take its place for even one hour; for it comprehends the love of nature in its most extended meaning; it comprehends the love of man in the reality of affectionate kindness, good-will and sober behaviour; and it comprehends the love of god, in the daily witnessing of His works in their loveliest aspect. Who would not be a jolly gardener? Who would not have at least some living flowering thing to set an earthly love upon? Who would not ever keep at least one flower near the heart, to cheer it in a glowing hour, and read in it an easily-learnt lesson of love and duty to man and God? Surely, without a garden, life is hardly possible; with it all the foes of man may rise up against him, and he may turn aside for a moment, and catch a glimpse of his roses through the open window, and say, "My peace is there: there will I seek God, my refuge."—*Shirley Hibberd, in The Floral World.*

# Miscellaneous.

## FOOD AND ITS CONSTITUENTS.

The food best adapted for one man is not always the most suitable for another. In a recent number of *Blackwood's Magazine*, the following cases are given as exceptions to general rules regarding food:—

"In 1844 a French soldier was forced to quit the service because he could not overcome his violent and repugnant disgust towards animal food. Dr. Prout knew a person on whom mutton acted as poison. 'He could not eat muttom in any form. The peculiarity was supposed to be owing to caprice, but the mutton was repeatedly disguised, and given to him unknown, and uniformly with the same result of producing violent vomiting and diarrhœa. And from the severity of the effects, which were, in fact, those of a virulent poison, there can be little doubt that, if the use of mutton had been presisted in, it would soon have destroyed the life of the individual.' Dr. Pereira, who quotes this passage, adds: 'I know a gentleman who has repeatedly had an attack of indigestion after the use of roast mutton.' Some persons, it is known, cannot take coffee without vomiting; others are thrown into a general inflammation if they eat cherries or gooseberries. Hahn relates of himself that seven or eight strawberries would produce convulsions in him. Tissot says that he could never swallow sugar without vomiting. Many persons are unable to eat eggs; and cakes or puddings, having eggs in their composition, produce serious disturbances in such persons, if they are induced to eat them under false assurances."

These statements may be perfectly reliable, but they are exceptional cases; the following general information, by Dr. Lankester, of London, is of universal application:

Flesh-producing food, like every organ in the human body, contains three out of the five known gaseous elements of nature, namely, oxygen, hydrogen and nitrogen, together with one only of the many solid elements of chemistry, namely, carbon, which may be said to be the only solid basis of all organisms, vegetable as well as animal (bones excepted, the basis of which is calcium or lime.) Without these four elements of flesh-producing food—oxygen, hydrogen, nitrogen and carbon—no ingredients of food can be of use in building up the wasted parts of the body. The nutritive or flesh-forming ingredients, or proximate elements of food are called fibrin, albumen and casein; they contain the four elements just named in exactly the same proportions, and are found both in vegetable and in animal food. The nutritive value of food depends upon its richness in flesh forming matter. An adult man, in vigor, wastes five ounces of dry flesh daily, and requires the same amount of flesh formers in his food.

The flesh formers of the vegetable world are most abundant in those plants which yield the most substantive food of man; such as wheat, oats, barley, rice, Indian corn, &c.; and leguminous plants, such as peas, beans and lentils, or pulse. Wheat is the most important of these yielders, although the pea and bean tribe are so highly nutritious that they, in fact, require, or at least ought to be mixed with other food, to prevent them from being too heavy or indigestible.

Flesh-formers are indispensable to the very existence of the body, which is now believed to waste so fast that every forty days we may be said to possess a new body. This is certainly fast living compared with the slow ideas of the last generation of chemical physiologists who estimated the time for such waste and renewal at seven

years; but such is the modern idea, as we have stated, and perhaps the truth lies somewhere in the rather wide interval between forty days and seven years. But although flesh-forming food is thus indispensable, fuel-yielding food is no less indispensable, as the natural heat of the system is kept up by the latter, and not by the former.

Fuel-yielding or heat-giving food must consist essentially of three of the four elements of flesh-yielding food, namely, carbon, hydrogen and oxygen, the nitrogen not being essential to it as a heat-giver, though often still contained to some extent, in heat giving food; and indeed, neither is the oxygen of use as a heat-giver in the composition of the food, although it is essential as the evolver of heat when it combines, from the breathed air, with the elaborated heat giving food of the blood, in the lungs, or burns that food as fuel, in so combining with its hydrogen and carbon or its hydrocarbonaceous forms, thus converting these into carbonic acid gas and watery vapor, which are sent up the windpipe by the expiratory act of breathing, and so expelled, like so much smoke from a furnace, through a locomotive funnel or a chimney.

The proximate elements or ingredients of heat-giving food are mainly starch, gum, sugar, and fat, each of these containing more or less of the three elements of heat-giving food. Thus, fat, sugar, gum and starch are of little or no use in building up the structure of the body, or in repairing its waste. The natural heat of the body is 98° Fah. This must be kept up by the heat giving food—easy work for such food in tropical climes or in summer, but somewhat hard labor in the arctic regions, and in winter of the temperate climates.

Among heat-giving food are potatoes, carrots and other vegetables, rice, sugar and the fat of animal food, the butter of milk, the oils of vegetables, &c.

Five ounces of flesh-formers, being the amount required to restore the daily waste of the body, are contained in the quantities of each of the following vegetable substances:—

| | lbs | oz |
|---|---|---|
| Wheat flour | 2 | 1 |
| Barley meal | 1 | 6 |
| Oatmeal | 1 | 13 |
| Maize | 2 | 9 |
| Rye | 2 | 3 |
| Rice | 4 | 13 |
| Buckwheat | 3 | 10 |
| Lentils | 1 | 3 |
| Peas (dry) | 1 | 5 |
| Beans (dry) | 1 | 5 |

| | lbs | oz |
|---|---|---|
| Potatoes | 20 | 13 |
| Carrots | 31 | 4 |
| Parsnips | 15 | 10 |
| Turnips | 17 | 13 |
| Cabbage | 10 | 6 |
| Tea (dry) | 1 | 11 |
| Coffee (dry) | 2 | 1 |
| Cocoa (nibs) | 3 | 2 |
| Bread | 3 | 13 |

## WHY WE EAT, AND WHAT.

Now that the fruits of the earth are well nigh gathered in, and the labours of the husbandman have brought him to the completion of his harvest, it may not be out of place to enter into a critical examination of his principal crops, and to enquire whether or not all he has toiled for is "bread."

In coming to conclusions upon this point, we must first enquire what is "bread?" that is, what is the nature of those substances which an animal, in a healthy condition of body, requires for the daily sustentation of that *body*, and the due development of its structure and powers?

If we first inquire into the nature of the materials out of which the animal machine is made, we shall find that they may be summed up in the following catalogue:—

Water.—The mestruum in which certain matters are dissolved; one of the conditions of the softness and flexibility of animal substances.

Mineral Matter.—Forming the skeleton or solid framework, on which the softer parts are built. Ingredients, in small quantities, of certain tissues and fluids.

Flesh (*nitrogenous*).—Forming the muscles, and nearly identical in composition with the solid portion of the blood.

Fat (*carbonaceous*)—acts as a protecting cushion to the bones and to the muscles that move them—is a kind of fuel destined to be burnt in the animal economy to develop heat.

This is an epitome of the more necessary proximate principles of which the bodies of animals are composed, and as these same animals are machines in a state of activity, so they are liable to wear, and consequent waste in these essential constituents, and hence the necessity for a continuous supply, which is affected by our daily consumption of

| Liquid Matter. | Solid Matter. |
|---|---|
| *Drink.* | *Victuals.* |

Constituting Food.

In order, therefore, to meet the supply of these requirements, we have in food the following substances, which have been thus classified:—

Classification of Food.

Class I.—Alimentary, or necessary.

Group 1.—Mineral.
- *a.* Water.
- *b.* Salt.
- *c.* Ashes of plants and animals.

Group 2.—Carbonaceous—Respiratory—Heat-giving.
- *a.* Starch.
- *b.* Sugar.
- *c.* Fat.

Group 3.—Nitrogenous—Flesh-forming.
- *a.* Albumen.
- *b.* Fibrin.
- *c.* Casein.

Class II.—Medicinal, or auxiliary.

Group 1.—Stimulants.
- *a.* Alcohol.
- *b.* Volatile oils.

Group 2.—Alteratives.
- *a.* Acids.
- *b.* Alkaloids.

Group 3.—Narcotics.
- *a.* Tobacco.
- *b.* Indian Hemp.
- *c.* Opium.

Group 4.—Accessories.
- *a.* Cellulose.
- *b.* Gum.
- *c.* Gelatine.

From this classification we see that food, on analysis, yields two sets of principles, one which is absolutely necessary to meet the wear and tear of the animal machine when in healthy action; the other, to aid in producing effects on different organisms, according to the defect or aberration of their functions. Now, if we enquire into the nature of these different groups of substances, more especially those of the first class, we shall find, as one essential characteristic, that these are not all required in uniform proportions, and that though all may be developed in every kind of vegetable, it may not be the most economical plan to derive all of them from the vegetable kingdom. This may be illustrated by reference to the first substance in the list.

*Water*—This fluid can be readily obtained from a spring. There is, therefore, no reason why we should desire its presence in large proportions in vegetable food, so that instead of a plant being more valuable as food in proportion to its amount of water, it is rather the reverse, for every alimentary substance of much value contains relatively but little water. This will be evident from the following table:—

Quantities of water in 100 parts of different kinds of vegetable food.

| | | | |
|---|---|---|---|
| Turnips, | 87 | Beans, | 14 |
| Carrots, | 86 | Whiat-flour, | 14 |
| Parsnips, | 79 | Barley-meal, | 14 |
| Potatoes, | 75 | Oat-meal, | 13 |
| Peas, | 14 | | |

These figures are calculated, at first sight, to startle the inquirer, who would naturally ask, "can it be true that in what we call our root crops we have eighty-two per cent. of water?" but that it is so, is easy of demonstration. If we cut any of these kinds roots in slices, and thoroughly dry them at the heat of boiling water—212 Fahrenheit, we shall find that the table above shown has understated rather than exaggerated this matter. Indeed, by this simple test have we made out that some specimens of turnips yield only five per cent. of solid matter, or as much as ninety-five per cent. of water!

Viewed, then, in this light, it is no wonder that people should commonly use the terms "watery" and "poor" synonymously, or that the farmer should distinguish the more watery kinds of food for his stock as having "no proof," and this is, indeed, a point which he so nicely estimates, that whatever be the physical appearance of a crop, he can tell by its effects how much stock it will carry, that is, how much more nutritive one crop is than another, and a greater or less proportion of water is usually at the bottom of the mystery.

Judging by this test alone, who, on looking at the first four kinds of crops—roots, which we have tabulated—would not conclude that they were infinitely below the last five in nutritive properties? Though it does not follow that potatoes are more nutricious than all other roots, because of their lesser amount of water; for putting aside the water as a non-nutritive element in vegetable substances, we must judge of their relative feeding value, by the other constituents.—*Irish Agricultural Review.*

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## TWENTY THINGS WHICH A BAD GROOM OR COACHMAN WILL DO.

1st. He will recommend his master to buy horses from the dealer who will allow him the greatest bribe, without taking into consideration whether they are likely to suit or not.

2nd. He will expect more profit, in the shape of gratuity, from the horsedealer, coachmaker, saddler, or corn-dealer, than those tradesmen realise for themselves out of his order.

3rd. He will, in place of exercising his horses when not in regular work, let them stand with their legs swelling in the stable, while he is smoking a short pipe and backing racehorses for shillings, behind the bar of a back-street beerhouse, with more of the same fraternity.

4th. He will, when he does take it in his head to exercise his horses, ride them on the hard stones in crowded thoroughfares, at any pace, to suit his own purpose, whether beneficial to the horses or not.

5th. He will fill the racks with good hay until the horses contract a habit of pulling it out under their feet, and so mix it with litter and waste it. He will also roll up the horse's bed in a morning and cram it under the manger, and thus keep it under the horse's nose all day, and often prevent him from feeding, in place of taking it clear out of the stable, shaking it well up, and mixing with clean straw to sweeten it

6th. When his horses are brought in reeking with perspiration, he will sponge them all over and wash their legs with cold water, and then leave them to dry, while he fills his own belly and smokes his pipe, in place of instantly stripping his coat and vest, first coaxing his horses to stale, and then wisping them with straw from head to heel, until they are dry, wash out their mouths, give them a lock of the sweetest hay, and then leaving them refresh himself. After which he will return, without loss of time, and complete the grooming, water, feed, bed-down, and leave them to their often much-needed rest.

7th. On mounting his master's saddle-horse for exercise, he will instantly apply the whip or spurs, and tear the reins about, as if the horse's mouth was made of iron; and this will be his readiest means of making the horse restive and unsteady while his master mounts him.

8th. He will invariably spur, check his horse's mouth, and curse him, while at exercise, for any little infirmity, as if it were vice—more especially for shying—whether the cause be a natural timidity, as in human beings, defect in the eyesight, or a display of gaiety, brought about by long confinement in the stable.

9th. He will trim his horses' heels with the scissors, instead of pulling the superfluous hair out, bit by bit, with his fingers dipped in powdered rosin. He will also

crop their tails, to suit his own taste, without his master's orders, trim the hair which naturally protects the inside of their ears, and singe them under the throat, and thus bring on influenza.

10th. He will often deal a little in dogs, and suffer them to lie among the hay, which the horse will not eat with so much relish, if he does not refuse it altogether, when impregnated with the excrements of these animals.

11th. When bedding a horse down, he will strike him on the legs with a pitchfork, just because he does not move quick enough from one side of the stall to the other; and (while grooming him) the more sensitive and ticklish his skin, the more he will torment him, more especially if any one be watching this (to him) interesting exhibition; and he will, from time to time, strike him savagely on the shanks with the sides of his brush, or curry-comb, and thereby raise a permanent blemish, or inflict a cruel injury, and account for it to his master as the result of stable kicking, or, if a new purchase, that it was overlooked, and then the horse is returned for breach of warranty, especially if bought from a dealer who has not allowed him sufficient "tip."

12th. If the horse, by reason of his heavy, unsteady hand, tight curb, and severe bit, attempt to raise his head and fore feet, because he cannot bear the excruciating pain thereby occasioned, he will say he is a "rearer," and, rising in his stirrups, strike him with all his might between the ears, as he will say, "to cure the brute," and thus lay the foundation for a case of poll-evil.

13th. He will irritate and punish a high-couraged horse, merely for the sake of showing himself off as a rider, notwithstanding that the action and capers of the horse are so easy that he would not shake a fly off his back.

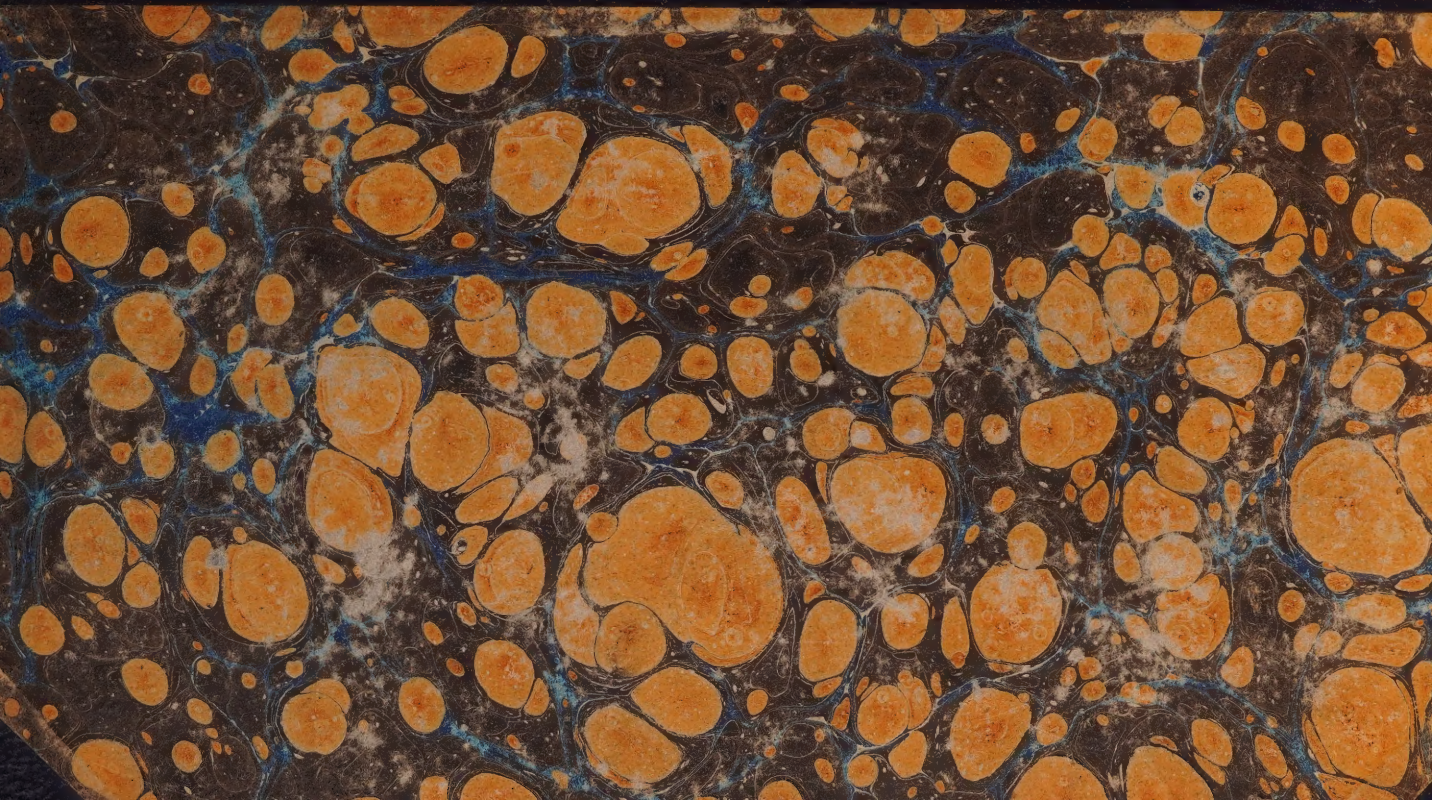
14th. He will take especial care to exclude every breath of air from the stable, lest it should make the horse's coat rough, and give him more trouble to groom it.

15th. In harnessing his carriage horses, he will persist in reining them up so tight with the bearing rein that they cannot see to avoid uneven places, or loose stones on the road; and if they make a slight stumble they must of necessity come down, because they have not the free use of their head to assist them in keeping on their legs, and when down they have to struggle hard to get up again, for want of freedom in their neck and head, so necessary to propel their fore-hands forward to stretch out their legs, and so place their fore-feet on the ground as a lever, to raise their hind quarters. No opinion is more erroneous, and none more believed by conceited servants, than that a bearing-rein will prevent a horse from falling.

16th. He will scarcely miss a week without cramming alterative or condition balls down his horses' throats, and made up from his own or his brother chip's prescription, and he would at any time take the opinion of the village blacksmith before that of a qualified V. S., who never allows him any "tip."

17th. If he happens to have a hard-mouthed pulling horse, he will always be on the look-out for new inventions in bits, and fresh tortures, never dreaming that the more these jaw-machines are applied to a horse, the less he will care for them, nor that a light, even hand in a plain snaffle bit, in the absence of punishment and irritating causes, is, after all, the best remedy for a pulling horse.

18th. If a bad coachman's horses appear more fretful and irritable than usual, he will not be at the trouble to get down from his box to examine the harness or curb chains, to see whether the former does not chafe them, or the latter be too tight; or if they appear more dull and sluggish than is their wont, he will never take into consideration that, like himself at times, they may feel a little amiss, without being so bad as to be off their food, but he will continue to whip them without thought or mercy.

19th. He will, after keeping his horses heavily clothed and without fresh air in the stable, stand talking half an hour in the street with some friend, in cold, damp weather exposing his horses to the certainty of a cold.

20th. He will never take advice from an experienced man, because he considers that he knows more than any one else; and even if his master should kindly give him advice relative to the treatment of his horses which he cannot reconcile to his own conceited ideas, he will be sure to ridicule and repeat it to his companions, who will coincide with him that all masters are fools, and advise *him* to do as *they* do—treat their employer's valuable animals in their own particular, stupid way, until they are found out, and very properly sent about their business, to make room for better men.—BALLINASLOE, *in Review (London.)*